TECHNICAL SPECIFICATIONS

FOR

TOWN OF GILBERT

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS

Project No. ST152

GILBERT, ARIZONA

JANUARY 2015

TECHNICAL SPECIFICATIONS

Mayor
John Lewis

Vice Mayor
Eddie Cook

Town Council
Ben Cooper
Jenn Daniels
Victor Petersen
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Town Manager
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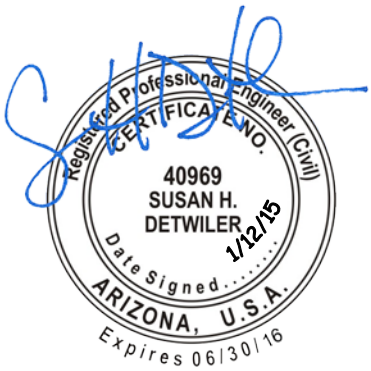

Dibble Project No. 101235

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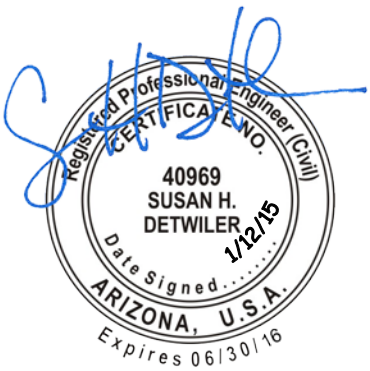
APPENDICES

DOCUMENTS PROVIDED IN ATTACHED APPENDICES ARE FOR REFERENCE ONLY AND NOT PROFESSIONALLY SEALED BY AUTHOR.



SECTION I

STREET AND DRAINAGE IMPROVEMENTS

PART 100 - GENERAL CONDITIONS

The "Uniform Standard Specifications for Public Works Construction" which are sponsored and distributed by the Maricopa Association of Governments (MAG), and which are hereinafter referred to as the "MAG Standard Specifications," are hereby adopted as part of these contract documents. Copies of these documents, with the latest revisions, may be obtained at the Maricopa Association of Governments, 302 North 1st Avenue, Phoenix AZ 85003.

The Maricopa County Department of Transportation Supplement to the MAG Standard Specifications is also adopted as part of these contract documents. Copies of these documents may be obtained at:

Maricopa County Department of Transportation
2901 W. Durango
Phoenix, AZ 85009
Telephone (602) 506-8600

SECTION 101 ABBREVIATIONS AND DEFINITIONS

Add the following subsections to the MAG Standard Specifications:

101.2 Definitions and Terms:

Town:	Town of Gilbert, Arizona
Contracting Agency:	Town of Gilbert, Arizona
Consulting Engineer:	Dibble Engineering 7500 N. Dreamy Draw Drive, Ste 200, Phoenix AZ 85020
Construction Manager:	Stanley Consultants 1757 E. Highland Avenue, Phoenix, AZ 85016

SECTION 104 SCOPE OF WORK

Add the following subsections to the MAG Standard Specifications:

104.1 Work to be Done:

This project is located in the Town of Gilbert. The limits of improvements are:

- Higley Road, between SR202L and Mesquite St (Alignment), approximately 5,300 feet
- Warner Road, approximately 800 feet west and 1,500 feet east of the Higley Road Intersection

The project is generally described as follows: design and construction of improvements to the intersection of Higley and Warner Roads to the full major arterial standards on all legs, within the Town of Gilbert (Town). North of the intersection widening, Higley Road will be reconstructed from approximately 600 feet north the Warner Rd intersection to the Mesquite Street alignment, approximately 2,000 feet, to provide one lane in each direction. South of the Warner Road Intersection, Higley Road will be reconstructed and widened from approximately 600 feet south of the Warner Rd intersection to SR202L to include a raised median with two lanes in each direction.

Major elements of the project include construction and installation of the following: asphalt cement paving, curb and gutter, median curb, sidewalk, retention basins, farm road grading, water and sewer stubs, irrigation relocations, signing and pavement marking, traffic signals, street lighting, ITS conduit, and landscaping.

104.1.1 General:
The work shall be as described in the specifications, as shown on the project plans, and in compliance with permit requirements.

The work shall conform to the Town's Public Works and Engineering Standards and Details, and MAG Standard Specifications, latest edition. Any section or any sub-section of any Standard Specification included within these Contract Documents by reference only is understood to be made part of these Contract Documents. The contractor shall have at least one copy of all referenced standard specifications and details at the job site at all times.

Standard Drawings and the manuals referenced in the project contract documents shall be required for construction of this project, insofar as applicable for any work to be performed within the public right-of-way and within the Town jurisdictional limits.

- Town of Gilbert Public Works and Engineering Standards and Details
- Manual on Uniform Traffic Control Devices (MUTCD), Millennium Edition, latest version

All work mentioned or indicated within the Contract Documents shall be performed by the contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such construction is to be excluded or modified.

SECTION 105 CONTROL OF WORK

Add the following subsections to the MAG Standard Specifications:

105.2 Plans and Shop Drawings:

If the submittal is acceptable, one (1) copy will be stamped "No Exceptions Taken" and will be returned to the Contractor.

If the submittal requires corrections, one (1) copy will be stamped "Revise & Resubmit" or "Make Corrections Noted" and will be returned to the Contractor. The Contractor shall submit five (5) corrected or new copies.

If the submittal is rejected, one (1) copy will be stamped "Rejected" and will be returned to the Contractor. The Contractor shall submit five (5) corrected or new copies.

The copy stamped "No Exceptions Taken," returned to the Contractor, will become a part of the contract documents and will be kept at the job site. Any work done prior to the receipt of this review will be at the Contractor's risk and expense.

105.8 Construction Stakes, Lines and Grades:
Section 105.8 of the MAG Standard Specifications is replaced with the following:

The Contractor shall furnish all materials, personnel, and equipment necessary to perform all surveying, staking, laying out of control lines and verifications of the accuracy of all existing control points which are delineated in the design drawings and contract documents. The work shall be done under the direction of a Registered Land Surveyor licensed to practice in the State of Arizona.

Staking Outline: Prior to beginning any survey operations, the Contractor shall furnish to the Town of Gilbert Project Manager, for approval, a written outline detailing the method of staking, interval of stakes, marking of stakes, grade control for various courses of materials, referencing, structure control, and any other procedures and controls necessary for survey completion. A part of this outline shall also be a schedule which will show the sequencing of the survey and layout work, throughout the course of the

contract, listing a percentage of completion for each month.

Field Books: The Contractor shall furnish field books to be used for recording survey data and field notes. These books shall be available for inspection by the Town at any time and shall become the property of the Town upon completion of the work.

Survey Control Verification:
The Contractor shall protect in place the Project Benchmark, described on the cover sheet:

ALUMINUM CAP IN HAND HOLE STAMPED "2BL1 1999"
60 FEET WEST OF GREENFIELD ROAD AND 565 FEET NORTH OF WARNER ROAD
ELEVATION: 1277.52

The Contractor shall be responsible to stake construction elevations tied to the bench mark.

(A) Control Points (horizontal and vertical) – The existence and location of all survey monuments, bench marks and control points shall be verified prior to demolition or construction activity. Immediately notify the Town of Gilbert Project Manager when location discrepancies greater than two-hundredths (0.02) foot horizontal or one-hundredth (0.01) foot vertical are found. All datum shall be the Town of Gilbert Vertical Network.

(B) Control Lines – Construction control lines with grade breaks, transition points, horizontal and vertical curves, etc., shall be established and referenced prior to construction.

Pre-Construction Location Survey: All existing features which are located prior to construction shall be referenced to survey monuments along control lines by stationing in accordance with the construction documents and by offset distance from the control lines. All features shall be relocatable after construction. Distances measured shall be within one-hundredth (0.01) foot.

(A) Survey monuments – All survey monuments that lie within the construction area that may be disturbed shall be referenced to a specific point on at least four (4) stable objects by distance measurement. Reference objects shall be located no greater than three-hundred (300) feet from the survey monument being referenced.

(B) Water and Sewer line appurtenances – Water and sewer line appurtenances such as manholes, valves, and cleanouts that lie within the construction area shall be located and noted on the Contractor's approved construction documents prior to any demolition or excavation.

(C) Match Points and Removals – Verify the location (horizontal and vertical) of existing facilities to which the project connects. Immediately notify the Town of Gilbert Project Manager when location discrepancies of connecting facilities greater than one-tenth (0.10) foot horizontal or two-hundredths (0.02) foot vertical are found.

Construction Stakes: The Contractor shall set construction stakes and marks establishing lines and grades for road work, curbs, gutters, path, structures, buildings, centerlines for utilities and necessary appurtenances and other work as indicated in the design drawings and contract documents and shall be responsible for their conformance with the plans and specifications.

The stakes shall be established in accordance with the following guidelines which represent the minimum standard and the Contractor shall provide additional stakes and controls necessary to perform the work. The Contractor shall be held responsible for the preservation of all stakes and marks and will replace, at no additional cost to the Town, any construction stakes or marks which have been carelessly or willfully destroyed by any party.

(A) Curbs, Curb and Gutter, Valley Gutter:

(1) Cut/fill stakes for rough grade shall be set at one-hundred (100) feet intervals with cuts to the top of curb.

(2) Finish grade stakes shall be set to curb grade at twenty-five (25) feet intervals, at grade breaks, angle points, transitions, returns, driveways, alley entrances, sidewalk ramps and other curb control points. The maximum stake interval for grades two tenths of one (0.02) percent or less shall be twelve and one half (12.5) feet for concrete work. The stakes shall be tacked for line on a two (2) foot offset to the back of curb.

(3) Face of curb forms shall be checked for grade at flow line prior to placing concrete where longitudinal grades are two-tenth (0.20) percent or less.

(B) Storm Sewer and Drainage: All cuts will be to the invert of the pipe, given to the nearest one-hundredth (0.01) of a foot.

(1) Stakes for storm water inlets, two (2) per inlet, will be set on a line normal to the roadway at the center line of the inlet five (5) and ten (10) feet from the face of curb. The stakes will be marked with the offset to the face of curb and the cut or fill to the top of curb and inverts.

Inspection and Acceptance of Work: The Town reserves the right to make inspections and random checks of any portion of the staking and layout work. If, in the Town's opinion, the work is not being performed in a manner that will assure proper control and accuracy of the work, the Town will order any or all of the staking and layout work redone at no additional cost to the Town.

As-Builts: A full size set of project Design Drawings shall be kept on-site and updated on a weekly basis with a red pencil or red ink to reflect any field adjustments, changes, omissions, additions, etc. as they occur on the project. The PM/CM will check site as-builts on a weekly basis to insure all modified project elements have been properly recorded on the field plan set.

The Contractor shall prepare as-builts using the project design drawing. Information shall be shown on these design drawings in red opaque ink, depicting the constructed dimensions, elevations, grades and materials including locations of existing underground utilities found during construction. The Town and Engineer will be the sole judge in determining whether the as-builts are acceptable.

All work included in the contract documents as well as changes to the contract shall be noted as correct or modified by either checking off the information if it is correct, or by drawing a neat line through the original data and writing in the correct information in red opaque ink if the information is incorrect. Unless noted otherwise below in the minimum as-built requirement section, station/offset measurements will be from construction centerline/monument line both parallel and transverse to roadway; added items or location changes shall be physically drawn at revised or new locations on the as-builts; and all measurements and stations should be to the nearest tenth of a foot.

The minimum requirements for as-built acceptance are as follows:

(1) Project Drawing Quantity Notations: Any project drawing or quantity summary sheet that shows a quantity on it that is incorrect shall be corrected by drawing a neat line through the original quantity and writing in the correct information. When space on the drawing does not allow room to indicate the corrections, a separate table may be drawn on a separate sheet with reference on both plan sheets to the plan sheet that the table refers to or to the sheet where the table is located.

(4) Existing/New Utilities: All underground infrastructure utilities, whether depicted on the project plans or not, shall be verified, corrected or added to the as-builts noting the beginning and ending station/offset location and elevation of utility relative to finished roadway grade or other identifiable

ground or permanent roadway/project feature. Any electrical installation work for street lighting or power connection shall be located relative to construction centerline/monument line or relative to back of curb and gutter (whichever is closer) including the depth of the facility.

(3) Removals: Dimensions and/or other volumetric descriptions and station/offset location of all removed items.

(4) Curb/Gutter/Valley Gutter: Beginning and ending station/offset location of straight curb/gutter/valley gutter runs relative to construction centerline/monument line; flow line elevation; and station/offset location of PC's and PT's.

(5) Driveway/Alley Entrances: Beginning and ending station/offset including driveway wings.

(6) Path: Beginning and ending station/offset and any other modification necessary to incorporate or avoid existing facility conflicts.

(7) Sidewalk Ramp: Curvilinear distance deviations measured along gutter flow line from curb and gutter PC/PT or other shifts/adjustments to properly align with pedestrian crosswalks or other modifications necessary to incorporate/avoid existing facility conflicts.

(8) Median Island: Beginning and ending station/offset of median and straight run median widths measured from back of curbs; beginning and ending station/offset of decorative median paving; bullnose radiuses; and measured widths of median in transition sections from back of curbs in 25 foot minimum increments or to bullnose radius PT/PC (whichever is less).

(9) Roadway Pavement: Beginning/ending station and measured completed roadway width from edge of pavement to edge of pavement in straight roadway sections; measured completed roadway width perpendicular to construction centerline/monument line from both edges of pavement to construction centerline/monument line in curved roadway sections; and actual sawcut removal/tie-in to existing pavement locations.

(10) Pipelines: When pipeline parallels the construction centerline/monument line, verify or correct the perpendicular distance between the two. When pipeline angles relative to the construction centerline/monument line or is in a curved roadway section, as-built measured straight pipe run distances, angle points, changes in size, fitting/tee locations tied-in with practical known construction centerline/monument line location or other easily verifiable permanent point. Distances between fittings are from fitting centerline. Fire hydrant and catch basin branch lines are to be shown in profile including pipeline bends and collars. All project drawing pipeline cross sections and profiles are to be corrected to reflect modified pipeline locations/alignments. Station and offset locations for sewer line laterals are from main line to ROW line with beginning/ending line location tied to a monument or to a property corner. Locations where waterlines cross curb and gutter are to be noted by station. Where waterlines run parallel to curb and gutter, note locations relative to back of curb or construction centerline/monument line (whichever is closer) including angle points and elevation.

(11) Manhole/Catch Basin/Valve/Cleanout/Tee: Beginning/ending station and offset. Stationing is to commerce at the downstream manhole (or as depicted on drawings) with location of tap/wye/tee/lateral locations clearly noted.

(12) Landscaping and Irrigation: Note beginning and ending station/offset/elevation including size of PVC; sleeve/pull-box/electrical-valve/water-service/tap/meter/bubbler/dripline locations.

(13) Traffic Signal: Signal pole station/offset; electrical conduit, sleeve, controller, meter pedestal and pull box station/offset with distances of electrical conduit runs noted and tied in with known point.

(14) Roadway Striping/Signage: Any relocated sign shall be located by station and offset from construction centerline/monument line. Any charge in roadway marking is to be noted on as-builts.

(15) Bridges, Box Culverts and Other Structures: Station/offset distances/centerline-bearing line/finished elevations of all bridge or structure elements. Bridge deck and girder elevations must reflect before and after concrete placement elevations.

(16) Roadway Street Lighting: Street light poles are to be located by station and offset from construction centerline/monument line.

(17) Linear Items: Fences, walls, ditches, etc. should be located by station/offset and tied in with a permanent point.

The as-built drawings shall be certified by an Arizona Registered Land Surveyor. As-built drawings shall be delivered to the Town of Gilbert Contract Administrator within thirty (30) calendar days from the date of final inspection and acceptance by the Town of the work completed under this contract. Work under this bid item includes transfer of all information noted by the Contractor on the on-site as-built drawing set described above under Bid Item number 105.010. Final payment will be made only after submitted as-builts are accepted by the Town (see "Measurement and Payment" below).

Measurement and Payment: Construction surveying will be measured as a single complete item of work and paid at the lump sum price indicated on the Schedule of Bid Items, which amount shall be considered full compensation for the work as described herein and required to provide all necessary survey stakes and control. The approved schedule showing the sequencing and percentage of the survey and layout work shall be the basis on which monthly progress payments shall be made. This schedule shall be subject to periodic review, at the request of either party, if the survey and layout work lags or accelerates. If necessary, the schedule will be revised to reflect changes in survey and layout progress. When approved, the revised schedule will become the basis for payment.

Final payment for survey work under this bid item will be made when the Town accepts the final as-built. Should the Contractor fail to submit acceptable as-builts within the maximum 30 calendar day period noted above, the Town will execute a deduct change order for 1% of the Construction Survey bid item total from the contract (or $2,500.00, whichever is greater) for every 5 working day period that the contractor fails to provide acceptable as-builts (not including Town review time). If the Contractor fails to submit acceptable as-builts after the 3rd submittal, the Town will deduct 5% from the Construction Survey As-Built bid item total from the contract (or $10,000.00, whichever is greater) and execute a final change order noting the Town's justification for penalizing the contractor for unacceptable as-built preparation.

SECTION 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

Add the following subsections to the MAG Standard Specifications:

107.2.1 PERMITS (AZPDES):

The Contractor shall be responsible for the preparation and implementation of an Arizona Department of Environmental Quality (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit Notice of Intent (NOI), Notice of Termination (NOT) and Stormwater Pollution Prevention Program (SWPPP) along with the preparation and submittal of all supporting applications and documentation.

The Contractor shall be responsible for implementing, installing, maintaining, and removing equipment and facilities specified in the SWPPP. This includes, but not limited to the preparation, installation, maintenance, and removal of temporary SWPPP elements, assuring proper operation of the pollution control devices installed, and all maintenance, cleaning, and disposal costs associated with the cleanup and repair following storm events, runoff or releases on the project.

107.2.1.1 Payment:

Payment for AZPDES permit, as completed herein, shall be made at the contract lump sum price under the bid item PERMITS (AZPDES). Payment shall be made as follows: 25% of the total item unit price shall be paid with the first progress payment, with the remaining 75% prorated over the entire length of the project.

PART 200 – EARTHWORK

SECTION 205 ROADWAY EXCAVATION

All costs for earthwork required for this project that are not specifically identified as a contract bid item shall be included within the existing associated contract bid items. This includes, but is not limited to, the cost for all export that may be required as a result of roadway work, removals, or utility excavation.

Add the following subsections to the MAG Standard Specifications:

205.1 Description:

Retention Basin, Swale and Farm Road Grading shall consist of excavating, grading, and hauling all types of materials encountered in the constructing the roadway curb & gutter, turnouts, driveway entrances, sidewalks, retention basins, farm access roads, berms, and other road-related area designated on the plans or specified in the special provisions; and the placement and compaction of excavated material in embankments as provided in Section 311 FILL CONSTRUCTION of the MAG Standard Specifications.

205.7 Measurement:

Retention Basin, Swale and Farm Road Grading will be measured by the square yard quantified from the limits of subgrade preparation to the daylight line. Roadway cross sections are provided in the plans for information only. No separate measurement will be made for volume of material displaced on the project.

205.8 Payment:

Quantities of Retention Basin, Swale and Farm Road Grading will be paid for at the contract unit price per square yard under the bid item RETENTION BASIN, SWALE & FARM ROAD GRADING. Such price shall include full compensation for excavating, sloping, rounding tops and ends of excavations, loading, depositing, conditioning, spreading, compacting the material, including embankments, complete in place and disposal of surplus material. The cost of export for all materials associated with the grading, excavation, or utility work shall be included in the contract bid items. Preparation of the subgrade and associated earthwork quantities shall be paid for under the bid item SUBGRADE PREPARATION as defined in these special provisions.

SECTION 220 RIPRAP CONSTRUCTION

Add the following subsections to the MAG Standard Specifications:

220.2 Materials:

The dumped riprap identified on the plans shall be placed with a filter fabric layer between the ground and the riprap.

The stones for riprap or grouted riprap shall be angular.

The material furnished for riprap and grouted riprap construction shall conform to the requirements of section 703, and to the following gradation:

D_{max}=	12”	(Maximum stone diameter)
D_{100}=	9”	(100% of stones equal to or smaller than)
D_{50}=	6”	(50% of stones equal to, or smaller than)
D_{30}=	4”	(30% of stones equal to, or smaller than)
D_{min}=	2”	(Minimum stone diameter)

Filter Fabric: Filter Fabric shall be a woven or non-woven high survivability filter fabric meeting the following requirements.

Non-woven:

Property	Requirement	Test Method
Grab Tensile Strength lbs	200	ASTM D 4632
Grab Elongation at Break %	15 minimum 115 maximum	ASTM D 4632
Puncture Strength lbs	80	ASTM D 4833
Burst Strength psi	320	ASTM D 3786
Trapezoidal Tear lbs	50	ASTM D 4533
Permittivity second^-1	0.50 minimum	ARIZ 730
Apparent Opening Size		
Sieve Size (U.S. Standard)	0-140	ASTM D 4751
Ultraviolet Stability %	70	ASTM D 4355

Woven:

Woven fabric shall meet the physical requirements listed above for nonwoven fabric except that the grab elongation at break, percent, shall be 13 minimum, 115 maximum. Certificate of compliance for the fabric is required prior to installation.

Filter Fabric: The identification, packaging, handling, and storage of the geotextile fabric shall be in accordance with ASTM D 4873. Fabric rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Each roll shall be labeled or tagged to provide product identification sufficient to determine the product type, manufacturer, quantity, lot number, roll number, date of manufacture, shipping date, and the project number and name to which it is assigned. Rolls will be stored on the site or at another identified storage location in a manner which protects them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof, light colored, opaque cover. At no time shall the fabric be exposed to sunlight for a period exceeding 14 days. Fabric shall be placed in the manner and at the locations shown on the project plans. The surface to receive the fabric shall be free of obstructions, depressions, and debris. The fabric shall be loosely laid and not placed in a stretched condition. The fabric strips shall be placed to provide a minimum 24-inch of overlap for each joint. On horizontal joints, the uphill strip shall overlap the downhill strip. On vertical joints, the upstream joint shall overlap the downstream strip.

220.8 Payment:

No separate payment will be made for the filter fabric, the cost being considered incidental to the riprap construction.

No separate payment will be made for grout, the cost being considered incidental to the riprap construction.

Payment for riprap will be made at the contract unit price per cubic yard. Payment shall be compensation in full for furnishing all labor, materials, tools, and equipment, and doing all the work involved in fabricating and placing the riprap. This includes, but is not limited to, transport, excavation, and

placement of the riprap as described in the MAG Standard Specifications, on the plans, and in the special provisions.

PART 300 – STREETS AND RELATED WORK

SECTION 301 SUBGRADE PREPARATION

Add the following subsections to the MAG Standard Specifications:

301.1 Description:

Required Inspections:
Subgrade shall be inspected prior to placing aggregate base course. The minimum number of density tests required is one for each 1,000 square yards.

301.7 Measurement:
Measurement for earthwork quantities within the limits described for subgrade preparation shall be included in the unit price for Subgrade Preparation. No additional measurement for earthwork quantities shall be made.

301.8 Payment:
Payment for subgrade preparation will be made at the contract unit price per square yard. Such payment shall constitute full compensation for all of the work required to prepare the subgrade.

SECTION 306 GEOGRID

Add the following subsections to the MAG Standard Specifications:

306.1 Description:

This work shall consist of mechanical stabilization with triaxial geogrid to reinforce the aggregate base layer.

306.2 General Requirements:

306.2.1 Submittals:

A. Submit representative geogrid product sample.

B. Submit geogrid product data sheet and certification from the manufacturer that the geogrid product supplied meets the requirements of these specifications.

C. Submit manufacturer's installation instructions and general recommendations.

D. Product must have local documented projects in Arizona.

E. Product not meeting these specifications can be used provided that they provide the following submittal. The submittal for an alternative Mechanically Stabilized Layer (MSL) must be submitted to the Engineer of Record (EOR) at least 2 weeks in advance of the bid date. The EOR should forward the submittal to the engineer-of record. The submittal must include the following:
    1. A design signed and sealed by a professional engineer registered to practice in Arizona.
    2. A submittal from the alternative MSL design engineer-of-record that includes:
        a. Full scale laboratory, field and/or accelerated pavement testing where the specific

geogrids are tested in-soil and representative conditions

b. A letter by the engineer-of-record stating that the submitted design utilizes modified layer coefficients that have been properly calibrated and validated for the geogrid reinforcement utilized in the MSL.

306.2.2 Delivery, Storage and Handling:

A. Prevent excessive mud, wet concrete, epoxy, or other deleterious materials from coming in contact with and affixing to the geogrid materials.
B. Store at temperatures above -20 degrees F (-29 degrees C).
C. Rolled materials may be laid flat or stood on end.
D. Geogrid materials should not be left directly exposed to sunlight for a period longer than the period recommended by the manufacturer.

306.2.3 Quality Assurance:

Pre-Construction Conference - Prior to the start of construction of the MSL, the Contractor shall arrange a meeting at the site with the geogrid material supplier and, where applicable, the geogrid installer. The Owner and the Engineer shall be notified at least 5 days in advance of the time of the meeting. A representative of the geogrid supplier shall be available on an “as needed” basis during construction.

306.2.4 Acceptance:

The Town’s representative can reject geogrid at installation if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transport, handling or storage.

306.3 Material:

306.3.1 Geogrid:

A. Synthetic fiber net at least 85-percent by weight of polypropylene, polyethylene, or polyester.

B. Resistant to chemical attack, rot and mildew.

C. No tears or defects that will adversely alter properties of product.

306.3.2 Roadway Aggregate Geogrid:

A. Structural Soil Reinforcement Geogrid – The geogrid component of the SAL shall be integrally formed and produced from a punched sheet of polypropylene which is then oriented in three substantially equilateral directions so that the resulting ribs shall have a high degree of molecular orientation, which continues at least in part through the mass of the integral node.

B. The resulting geogrid structure shall have apertures that are triangular in shape, and shall have ribs with depth-to-width ratios greater than 1.0.

C. The geogrid shall have the typical characteristics shown in the table below, and shall be certified in writing by the manufacturer to have the properties outlined in the table below. Alternate materials can be used, but usage will be based on actual performance testing. Submittals must follow:

Geogrid Properties				
Properties	**Longitudinal**	**Diagonal**	**Transverse**	**General**
Rib pitch, mm (in) (1)	40 (1.60)	40 (1.60)	-	
Mid-rib width, mm (in) (1)	-	1.8 (0.07)	1.5 (0.06)	
Mid-rib depth, mm (in) (1)	-	1.1 (0.04)	1.3 (0.05)	
Rib shape				rectangular
Aperture shape				triangular

1. Nominal Dimensions

Unless indicated otherwise, values shown are minimum average roll values (MARV) determined in accordance with ASTM D-4759.

D. Multiple layers of geogrid used to meet the requirements set forth in the preceding table shall not be accepted.

E. In-air index testing of geogrid properties, or explanations of performance based on in-air index testing of geogrid properties are not sufficient to understand the complex mechanisms involved in soil/geogrid interaction and/or the performance of MSLs. Therefore, no acceptance of alternates based on material property comparisons or explanations of performance based on in-air testing of geogrid properties will not be allowed.

F. The names and contact people for at least three projects of similar size and type that have been installed using the geogrid.

G. A professional engineer stamped design specific to this project.

306.4 Construction Requirements:

306.4.1 Granular Base Reinforcement:

A. Place geogrid at the proper elevation and alignment as shown on the construction drawings. Provide minimum overlap per manufactures recommendations. Install geogrid in accordance with the installation guidelines provided by the manufacturer or as directed by the Engineer. Geogrid may be temporarily secured in place with ties, staples, pins, sand bags or backfill as required by fill properties, fill placement or weather conditions or as directed by the Engineer.

B. Granular fill material shall be placed, spread, and compacted in such a manner that minimizes the development of wrinkles in the geogrid and/or movement of the geogrid.

C. A minimum loose fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid. If subgrade conditions permit, rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph) when integrally-formed geogrids are used. When woven, multi-layer or welded strip geogrids are used, rubber-tired equipment shall not be allowed directly on the geogrid. Sudden braking and sharp turning movements shall be avoided.

D. Any roll of geogrid damaged before, during and/or after installation shall be replaced by the Contractor at no additional cost to the Owner. Proper replacement shall consist of replacing the affected area and overlapping the geogrid 1 foot on all sides adjacent to the damaged area.

306.4.2 Protection:

A. At least 6-inches of fill cover is required if tracked vehicles are operated over geogrid.

306.5 Payment:

Triaxial Geogrid Tensar TX7 or Approved Equivalent shall be made at the price bid per square yard to the neat lines shown on the plans, and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in installing the geogrid in place as specified on the plans, and in these special provisions.

SECTION 342 DECORATIVE PAVEMENT - CONCRETE PAVING STONE OR BRICK

Add the following subsections to the MAG Standard Specifications:

342.1.1 Description:

The construction of decorative pavement shall consist of installation as shown on the plans and specified in these special provisions.

342.2.4 Materials:

Concrete pavers (Detail 7) shall match color and pattern of existing pavers at the Higley Road and SR202L Traffic Interchange. The Contractor shall provide a sample color to the Town's representative for approval prior to installation.

Where stamped AC pavement is identified on the plans, the Contractor shall provide stamped and colored asphalt by Streetprint, or approved equal. The Contractor shall coordinate with Streetprint, or approved equal, to provide samples of the Ashler Slate Template in Terracotta color to the Town's representative. The Town shall approve the pattern and color prior to any work being performed related to the stamped AC pavement placement. The work shall be performed in accordance with the manufacturer's recommendations and specifications.

342.6.1 Payment:

Decorative pavement - concrete pavers or stamped asphalt- shall be made at the price bid per square foot to the neat lines shown on the plans, and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in constructing the decorative pavement complete in place as specified on the plans, and in these special provisions. This includes, but is not limited to, preparation of ground surfaces, excavation, trenching, furnishing concrete, placing and finishing.

SECTION 345 ADJUSTING FRAMES, COVERS, VALVE BOXES AND WATER METER BOXES

Add the following subsections to the MAG Standard Specifications:

345.6 Payment:

Payment for manhole, valve, and meter grade adjustments will be made at the contract unit price per each. Such payment shall constitute full compensation for performing all of the work associated with the grade adjustments as defined on the project plans and in the specifications. No separate measurement or additional payment will be made for non pop covers as identified on the plans, the cost being considered incidental to the adjustment of the water valve.

SECTION 350 REMOVAL OF EXISTING IMPROVEMENTS

Add the following subsections to the MAG Standard Specifications:

350.1 Description:

Where the items are identified to be salvaged, the Contractor shall deliver the item to a location to be determined by the Town. The location for salvaged item delivery shall not be located more than 5 miles from the project site.

PART 400 – TRAFFIC CONTROL, RIGHT-OF-WAY DEVELOPMENT AND INCIDENTALS

SECTION 401 TRAFFIC CONTROL

Add the following subsections to the MAG Standard Specifications:

401.5 General Traffic Regulations:

Contractor shall submit traffic control plans to the Town of Gilbert for approval prior to the start of work in accordance with the Town of Gilbert Design Engineering Standards.

401.6 Measurement:

Traffic control devices shall be measured according to Contractor supplied invoices for devices provided.

401.7 Payment:

Traffic control devices shall be paid per approved invoice amounts provided by Contractor.

Add the following sections to the MAG Standard Specifications:

SECTION 471 ELECTRICAL UNDERGROUND INSTALLATION

471.1 Description:

The work under this item shall consist of furnishing and installing electrical PVC conduit, casings, and manholes (installation only) for SRP underground electric work as shown in the Project Plans, SRP Project Number T1979077, sheets 1 through 13. The work shall include excavation, jack and bore, installation of conduit, removal of spoil, backfilling, installation of warning tape, connectors and fittings, locating existing conduit when new conduit is to be intercepted with existing, and restoration of the surface to existing condition, including decomposed granite or other landscape, as required.

471.2 Materials:

All conduit material, including but not limited to fittings, couplers, primer, elbows, and adhesive shall conform to the contract design documents and shall meet the requirements of SRP plans and specifications.

471.3 Construction Requirements:

The Contractor shall provide and/or install the following:

1. All trench material and trench related work including, but not limited to: trenching, asphalt cutting, milling, boring, spoils removal, backfill materials, and compaction, all surface restoration (i.e. landscaping, sidewalks, curbs, gutter, asphalt, etc.) as it relates to work performed on this project by the Contractor.

2. All conduit and material related to services, including but not limited to: PVC conduit (various size as specified in SRP plans), conduit sweeps, couplings, primer, and glue.

3. Labor and 2-sack material for concrete encasement of the duct bank, unless otherwise noted.

4. All miscellaneous material and work, including but not limited to: barricading, shoring, steel plating, and traffic control.

5. All conduit shown to be installed in energized equipment, will be capped and located at a point either 2 feet from the equipment or from the BlueStake markings for underground electric cables. Warning: Do not enter energized SRP equipment.

6. Labor to expose and attach to/or reroute existing empty conduit. Rerouting of conduit presently in use shall be performed by the Contractor after the existing electrical cable has been removed by SRP forces.

7. Surveying of construction centerline staking, all vertical control and staking of depth requirements for all SRP trenches. Trench alignments and depths shall be adjusted to provide a minimum of two feet vertical clearance from proposed conflicts, and one foot vertical clearance from existing conflicts. SRP requires two feet horizontal alignment clear from all existing and proposed conflicts.

8. All materials and equipment required for installation of SRP provided manholes and electric markers.

SRP will provide the following for the Contractor to install:

1. All manholes and electric markers.

SRP will provide and install the following:

1. All conductors.

471.4 Measurement

Trench and conduit will be measured by the linear foot for each trench configuration specified in the SRP plans.

Bore and casings will be measured by the linear foot.

Manhole installation will be measured by each.

471.5 Payment

Payment for trench and conduit will be made at the unit bid price per linear foot. Such payment shall constitute full compensation for providing all labor, materials, tools, and equipment to complete this work.

No separate payment will be made for the installation of electric markers per SRP plans and specifications. This work shall be considered incidental to the trench and conduit pay item.

Payment for bore and casing will be made at the unit bid price per linear foot. Such payment shall constitute full compensation for providing all labor, materials, tools, and equipment to complete this work.

Payment for manhole installation will be made at the unit bid price each. Such payment shall constitute full

compensation for providing all labor, materials, tools, and equipment to install the SRP provided manhole.

PART 600 - WATER AND SEWER

SECTION 615 SEWER LINE CONSTRUCTION

Add the following subsection to the MAG Standard Specifications

615.1 Description:

Sanitary sewers shall be polyvinyl chloride (PVC) SDR 35 in accordance with Section 745.

PVC Sanitary Sewers shall be installed and tested per TOG Public Works and Engineering Standards and Details 4.2.B.

615.11 Testing:

Section 615.11(C) Deflection Test for PVC Pipe is modified to add the following:

The Contractor shall test the first 150 feet of pipe after it has been backfilled, using a deflection test mandrel, to verify that the installation design and procedure are adequate. The Contractor shall submit to the Engineer a shop drawing for the deflection test mandrel.

The Contractor shall test the entire length of new sanitary sewer pipeline upon project completion. Sanitary sewers constructed of flexible pipe (PVC) shall be tested for deflection not less than 20 days after the trench backfill and compaction has been completed. The deflection shall not exceed 5% of the base I.D.

The test shall be conducted by pulling a properly sized “go/no-go” mandrel through the completed pipeline. For measuring deflection a pre-sized mandrel approved by the Engineer shall be pulled through the pipe. The mandrel shall be sized so that if the pipe exceeds the allowable deflection, the mandrel is blocked. In order to properly size the mandrel, the allowable vertical diameter of the pipe must be established. This can be calculated by subtracting the allowable deflection from the minimum base I.D. The based I.D. takes into account allowable pipe’s manufacturing tolerance. Testing shall be conducted on a manhole-to-manhole basis and shall be done after the line has been completely flushed out with water. The pipe or fittings not passing the mandrel test shall be rejected and replaced by the Contractor.

Section 615.11(D) Closed Circuit T.V. Inspection of the MAG Standard Specifications is deleted:

The Contractor shall conduct a post construction CCTV video inspection and provide the Town of Gilbert Engineering Department with a minimum of three copies of the video prior to approval of the sanitary sewer. The video shall be in DVD format. VHS format is not acceptable. The cost of CCTV video inspection shall be considered incidental to the contract, and no separate payment will be made.

SECTION 618 STORM DRAIN CONSTRUCTION

Add the following subsections to the MAG Standard Specifications:

618.2 Materials:

The rubber gasket reinforced concrete pipe (RGRCP) shall have a D-load of 1500.

SECTION 625 MANHOLE CONSTRUCTION AND DROP SEWER CONNECTIONS

Add the following subsections to the MAG Standard Specifications:

625.3.1 Manholes:

After the new pipe has been tested, inspected and accepted for service and the manhole has been adjusted for final grade, the entire interior circumference shall be coated for corrosion with “Sewer Shield 100” by Environmental Coating or approved equal, including adjusting rings. The interior of the manhole and manhole structures shall be free from all loose material to provide a clean bonding surface. Refer to the paint manufacturer’s specifications for preparation instructions.

The insecticide paint shall be “Insecta for Manholes” as manufactured by Insecta, Inc. or “Super IQ” as manufactured by Farmland Industries’ Incorporated. Acceptable alternates must be approved by the Environmental Protection Agency for application inside of manholes and contain no less than 0.86% Chlorpyrifos (by volume) as an active ingredient.

The rate of application shall be sufficient to provide a minimum of two (2) mil dry film thickness per coat. Two coats shall be applied. The paint must be applied by a “State of Arizona Licensed Pest Control Applicator”. The paint shall be white in color. This will allow the visual verification from ground level.

625.5 Payment:

Payment for installation of 5-feet diameter sanitary sewer manholes will be made at the contract unit price per each, and shall constitute full compensation for furnishing all material, labor, tools and equipment and accomplishing all work associated with installing the manhole as described in the special provisions and on the design drawings. Insecticide paint and manhole coating for corrosion protection will not constitute a separate pay item and shall be incidental to the cost of the sanitary sewer manholes.

SECTION II

LANDSCAPE & IRRIGATION IMPROVEMENTS

TECHNICAL SPECIFICATIONS

FOR

TOWN OF GILBERT

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS

Project No. ST152

GILBERT, ARIZONA

JULY 2014

SECTION II LANDSCAPE & IRRIGATION IMPROVEMENTS

EXPIRES: 12/31/15

Mayor
John Lewis

Vice Mayor
Eddie Cook

Town Council
Ben Cooper
Jenn Daniels
Victor Petersen
Jordan Ray
Jared Taylor

Town Manager
Patrick Banger

J2 Engineering and Environmental Design, LLC Project No. 130614

engineering and environmental design

4649 E. Cotton Gin Loop, Suite B2
Phoenix, AZ 85040
(602) 438-2221

SECTION 430 LANDSCAPING AND PLANTING

430.1 DESCRIPTION: *Is modified to add the following:*

The work under this section shall consist of furnishing all labor, materials, and equipment to install seeding, decomposed granite, trees, shrubs, and ground covers as designated for installation.

430.2 GENERAL: a*dd the following:*

The Contractor shall furnish all labor, materials, equipment, and incidental and appurtenant items of work needed to install the landscape, to the lines and details shown in the plans.

Applicable publications listed below form a part of this specification:

- Arizona Nursery Association Growers Committee Recommended Average Tree Specifications (Revised 2011).
- American Standard for Nursery Stock (2004)

The Contractor shall perform all work in accordance with all applicable laws, codes and regulations required by authorities having jurisdiction over such work and provide for all inspections and permits required by Federal, State and local authorities in furnishing, transporting and installing materials as shown or for completing the work identified herein.

All planting areas shall be left free of construction debris including but not limited to concrete, grout, rebar, wood, nails, debris and/or toxic material and graded to a level to permit landscape and irrigation construction. Compact trenches, foundation backfill or other filled excavations prior to turning the site over to the Landscape Contractor.

Compaction of fill areas for planting shall be at 85% maximum. No soil preparation or planting shall begin before the site has been cleared and cleaned of debris. The Engineer shall approve the condition of all planting areas prior to commencement of soil preparation for planting. Commencement of work indicates acceptance of job site conditions by the Contractor.

The Contractor shall cooperate and coordinate with other contractors and trades working in and adjacent to landscape areas.

The Contractor shall maintain stakes set by others until all parties concerned mutually agree upon their removal.

The Contractor shall ship materials with Certificates of Inspection required by governing authorities.

If any of the specified plant material is not obtainable, submit proof of non-availability in writing, together with a proposal for use of equivalent materials, similar in appearance, ultimate height, shape, habit of growth and general soil requirements. Send the availability letter to the Engineer within 30 days of Notice to Proceed. The definition of Non-availability is the contractor contacting a minimum of seven (7) different sources. The Contractor may make substitutions of a larger size of the same species and variety with the approval by the Engineer and at no additional cost to the Contracting Agency.

Before delivery, submit Certificates of Compliance, certifying that materials meet the specified requirements. Submit certified copies of the compliance reports for the following materials:

- Transporting of cacti and landscape plant materials (from the Arizona Department of Agriculture)
- Soil amendments and conditioners
- Decomposed Granite

Certification shall indicate suppliers name, address, telephone number, date of purchase, name, model number and technical description of item purchased, and quantity of each item purchased.

The Engineer reserves the right to take and analyze samples of materials for conformity to the specifications at any time. The Contractor shall furnish the samples upon request. Immediately remove rejected materials from the site at the Contractor's expense. The Contractor shall pay for the cost of removing any materials not meeting specifications.

All herbicide / pesticide applicators shall posses a valid A-20 or A-21 license with Pesticide Endorsement from the State Registrar of Contractors and Structural Pest Control Commission for application of non-restricted use chemicals. All Landscape Contractors are required to furnish a copy of their application from the Registrar of Contractors, which shall list the names of those employees approved as applicators by the Registrar of Contractors. Application of non-restricted use pesticides shall not take place until the Engineer receives a copy of the application.

As directed by the Engineer, treat all non-paved areas with a chemical contact herbicide, such as Round Up or approved equal, to kill existing weeds. Clear, grub and remove the weeds after weed kill has been established, to the satisfaction of the Engineer.
Finished grades for landscape areas shall be a smooth, uniform surface, free of abrupt grade changes or depressions. Finished soil grades adjacent to paving, curbs or headers shall be as shown in the drawings and may be adjusted by the Engineer for surface materials.

Provide proper surface drainage within all planted areas. Any grading conditions found in the plans or specifications, in obstructions on the site, or in prior work done by another party that the Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Engineer in writing for resolution.

During the installation of landscape plantings, keep pavements clean and work areas in a neat and orderly condition on a daily basis. Remove all debris, trash and excess materials generated by the landscape installation. Sweep, scrub or hose affected areas as directed by the Engineer to maintain a clean and neat work area.

Existing Utilities: Landscape Contractor shall call for "blue stake" as required. Exercise extreme caution in all planting operations, as there are underground utilities throughout the entire area. Contractor shall study and be familiar with the location of these obstructions and underground utilities. Place plantings where shown on the plans. If there are obstructions or underground utilities, relocate plants clear of any interference at the direction of the Engineer. Landscape Contractor shall repair all damages caused by him to obstructions and underground utilities at no expense to property owner or Contracting Agency. Determine location of underground utilities and perform work in a manner, which will avoid possible damage. Hand excavate, as required, to minimize possibility of damage to underground utilities.

Maintain grade stakes until all parties concerned mutually agree on removal.

The Contractor shall layout all plant material using stakes or flags to indicate the location of all plant materials. Spacing of shrub and groundcover material shall be as specified in schedule and as shown on the plans. Determine from the plan scale the location and spacing of trees, locating them as accurately as the scale permits. Accomplish preliminary adjustments to conform to actual site conditions at this time and with the approval of the Engineer or his authorized representative on the stakeout of all plant material.

Contractor shall not begin planting operations until landscape grading and irrigation system installation is complete, tested, and is fully operable by the irrigation controller.

430.4 DECOMPOSED GRANITE AREA: ***Delete in its entirety and replace with:***

Decomposed granite shall be native, local, desert, decomposed granite stone at the size and color specified on the plans. The decomposed granite shall be from a single source, free from coating, clay, caliche or organic matter. Contractor shall provide Engineer with a one-ton sample of material spread on-site to the required depth as indicated on the plans as well as a gradation report showing that the proposed granite is in compliance with the required gradations for review and approval a minimum of 15 working days prior to installation.

Contractor must examine the subgrade, verify the elevations, and observe the conditions under which the work is to be performed. The existing grade shall be fine graded and raked free of organic matter and other debris one inch diameter and larger and then compacted.

Any existing weeds or Bermuda grass growing in designated landscape areas shall be treated with a post-emergent spray, such as “Round-up”, or an approved equal. Any existing or new trees or vegetation shall be protected from the spray drift. There will be no separate payment for the weed spraying. Bermuda grass or weeds must be completely eradicated from all areas of the landscape and where designated by the Engineer. The Contractor shall remove all non-planted vegetation from all areas designated to receive decomposed granite (by chemical or mechanical means) and maintain the designated areas “vegetation-free” for a minimum period of 40 working days prior to placement of the decomposed granite, or as specified by the Engineer.

All weed control products and herbicides shall be approved for use by the Engineer prior to any applications. Contractor shall submit copies of all manufacture specifications and application rates to the Engineer for review and approval prior to application. Herbicides and weed control shall only be performed by a licensed applicator; Contractor shall supply information on applicator to the Engineer for approval.

The sub-grade, prior to granite placement, shall be compacted to 85 percent of the maximum proctor density, as determined in accordance with the requirements of Arizona Test Methods 230 or 235, depending on the test method used to determine the compaction density (Sand Cone or Nuclear Method). Compaction testing and associated report shall be provided to the Engineer and sealed by a registered professional engineer specialized in geotechnical investigation with all cost for testing and report of results to be provided by the Contractor at no cost to the Contracting Agency.

Contractor shall apply three (3) applications of pre-emergent:

1. One application of pre-emergent herbicide prior to installing granite
2. One application after granite has been installed, compacted, and raked level
3. One application 30 Days prior to the end of the maintenance period

The Engineer is to be notified prior to all pre-emergent applications.

The pre-emergent herbicide shall be applied in the manner recommended by the manufacturer to prevent germination of noxious weeds, and shall be equivalent to Dimension, or an approved equal, and shall be applied at a rate specified by the manufacture to control weeds in an ornamental setting. Pre-emergent herbicide shall be applied to the designated granite areas, prior to the final water settling operation. Water to activate the pre-emergent herbicide shall be applied to the areas of the herbicide application as recommended by the manufacturer's label. The amount of water specified by the manufacturer may be adjusted due to rainfall, if approved by the Engineer.

After the first application of pre-emergent the granite shall be installed and shall be rolled or raked to remove any irregularities, tire marks etc. Installation shall provide a two-inch depth of decomposed granite after compacting. During the final spreading and final grading operations, all surfaces within the decomposed granite areas shall be passed over by the spreading and grading equipment a minimum of 2-times. Equipment operations for spreading, grading, raking, chemical application, water settling, and any other operations shall be done in a manner that uniformly maximizes the vehicle(s) wheel compaction over the surface area. All vehicles used for spreading, grading and raking the decomposed granite shall have one set of wheels with floatation tires having a minimum width of 18-inches to allow equal compaction of the granite. The use or application of granite by any method (conveyor belt etc.) shall not relive the Contractor of providing granite compaction to a level approved by the Engineer. Methods of compacting such as rolling, water settling, etc., shall be approved by the Engineer.

After placing, spreading, compacting, and grading the decomposed granite the contractor shall water settle the total thickness of the decomposed granite to remove the fine material from the surface of the decomposed granite. The water settling operation, noted above, shall be completed by applying water at minimum depth of one-half inch over the decomposed granite areas placed or as approved by the Engineer. This water settling technique can be used to water in the second application of pre-emergent in compliance with pre-emergent Manufacturer recommendations and as approved by the Engineer.

Unless otherwise specified in the drawings, granite finish grade shall be one inch (1") below top of adjacent hardscape surfaces.

430.4.1 Decomposed Granite 1 ¼ Inch Minus: Contractor shall supply and place decomposed granite in areas and colors as designated on the plans. Gradation requirements for the decomposed granite 1 ¼ Inch Minus is as follows:

Decomposed Granite 1 ¼ Inch Minus	
Sieve Size Sieve	**Percent Passing**
1 ¼ Inch	100
3/4 Inch	60-80
1/2 Inch	45-65
No. 40	5-20

Contractor shall provide samples to the Engineer for all granite as specified above for approval by the Engineer a minimum of 30 days prior to placement. Sample size shall be a minimum of one (1) ton of decomposed granite, spread on-site, to the depth as required on the plans. Contractor shall provide a certificate of compliance from the decomposed granite supplier ensuring that the material meets the gradation requirements.

430.4.2 Decomposed Granite ½ Inch Screened: Contractor shall supply and place decomposed granite in areas and colors as designated on the plans. Gradation requirements for the decomposed granite ½ Inch Screened is as follows:

Decomposed Granite ½ Inch Screened	
Sieve Size Sieve	Percent Passing
3/4 Inch	100
1/2 Inch	50-60
3/8 Inch	10-20
¼ Inch	0-10

Contractor shall provide samples to the Engineer for all granite as specified above for approval by the Engineer a minimum of 30 days prior to placement. Sample size shall be a minimum of one (1) ton of decomposed granite, spread on-site, to the depth as required on the plans. Contractor shall provide a certificate of compliance from the decomposed granite supplier ensuring that the material meets the gradation requirements.

430.4.3 ¼ Inch Minus: Contractor shall supply and place decomposed granite in areas and colors as designated on the plans. Gradation requirements for the decomposed granite ¼ Inch Minus is as follows:

Decomposed Granite ¼ Inch Minus	
Sieve Size Sieve	Percent Passing
1/4 Inch	100
No. 40	5-25

Contractor shall provide samples to the Engineer for all granite as specified above for approval by the Engineer a minimum of 30 days prior to placement. Sample size shall be a minimum of one (1) ton of decomposed granite, spread on-site, to the depth as required on the plans. Contractor shall provide a certificate of compliance from the decomposed granite supplier ensuring that the material meets the gradation requirements.

430.5 TREE, SHRUB, AND GROUND COVER PLANTING: ***Is modified to add the following:***

The Contractor shall coordinate pre-approval of plant material and delivery with the Engineer and applicable nurseries as required.

Upon delivery to the site, plant all nursery stock as soon as possible. Until planting, plants shall not be exposed to excessive sun or drying winds. The Contractor shall immediately replace any stock, which is not satisfactory in the opinion of the Engineer with acceptable stock.

Perform the planting of all trees during favorable weather conditions, during the season or seasons, which are normal for such work, as determined by acceptable local practice.

Planting pit width only for trees and shrubs shall be excavated to a minimum width in each direction of two and a half (2 ½) times the size of the root ball of the plant to be planted. Contractor shall stockpile native soil excavated. Use the native soil for backfilling planting soil. Contractor shall scarify the walls of the planting pit to the satisfaction of the Engineer.

Remove any rock or other underground obstructions, if possible, to the depth necessary to permit proper planting, according to plans and specifications. When encountering underground construction, obstructions, or rock in the excavation of planting areas, the Contractor may select other locations of the planting only upon approval of the Engineer. Prior to any work, the Contractor must be knowledgeable of the locations of all existing underground installations, and their protection is his responsibility. At the expense of the Contractor, correct all damage to the satisfaction of the Engineer. Coordinate all work with other trades so conflicts will not exist or delay the work in any way. Coordinate grades with earthwork and with placement of irrigation systems fixtures.

All planting pits shall be completely filled with water and allowed to completely drain so that all sides and bottom soil of planting pit is thoroughly moist prior to any plant being installed.

Planting pits shall be backfilled with equal parts in thirds of native soil, stabilized organic compost, and sand and be watered settled to a grade sufficient, that in the setting of the plant, the finish grade is level, after settlement, will be the same as that at which the plants were grown (see details in landscape plans).

Container Removal: Remove container by turning plant upside down, supporting root ball with hand and tapping container gently to dislodge plant. Support root ball with both hands until planted in pit. Do not injure root ball, or hold plant by the stem.

Box Removal: Remove bottom of plant boxes before planting. Remove sides of box without damage to root ball after positioning plant.

Set container and boxed stock on undisturbed native soil, plumb, and hold rigidly in center of pit or trench with top of ball at elevation as shown on planting details. When set, place additional soil backfill and fertilizer tablets around base and sides of ball, and work each layer to settle planting soil backfill to eliminate voids and air pockets. Working in six-inch (6”) lifts of planting backfill mix, water settle the area every twelve inches (12”) of depth applied around plant thoroughly before placing next two lifts, repeat process until completed.

After removal of plants from containers or box sides, superficially cut edge-roots with a sharp knife on sides and tease out feeder roots to assure positive contact and embedment into planting soil.

After watering, refill any settlement within basins to required grade with native soil.

Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by the Engineer, do not cut tree leaders, and remove only injured or dead branches. All pruning shall occur per the direction of the Engineer.

Remove from site any excessively pruned or malformed stock resulting from improper pruning and replace at no additional cost to the Contracting Agency.

Stake trees as identified on the plans. Stake all trees specified for staking in line with prevailing winds. Stakes shall be 2-inch round knot-free pine, length as required and installed as follows:

Stakes shall be placed immediately adjacent to, but in no case through, the root ball, and penetrate at least 6 inches into undisturbed soil, be aligned vertically, be pointed at one end, and be aligned so as not to interfere with the existing branch structure of the tree, extending five (5) to six (6) feet above grade.

Staple vinyl for fastening trees to stakes to the wood stakes, or otherwise attached to prevent removal of the vinyl. Provide not less than three (3) stakes spaced equally around trees (see tree staking details). After the Engineer has reviewed tree staking, remove all growth stakes, labels, and ties from trunks of trees and shrubs to be properly disposed of.

430.5.5 Ground Cover Areas: ***delete in its entirety and replace with:***

All ground cover plants and planting procedures shall be in accordance with Section 430.5.6.

430.5.6 Shrub and Tree Pits: a*dd the following:*

Plant Layout: The Contractor shall stake the location of individual trees, shrubs and accent plants, and layout the perimeter of ground cover areas in accordance with the plans for the Engineer to approve. The Contractor shall also make adjustments in the plant locations as directed by the Engineer and plant trees, shrubs, ground covers and accent plants after establishing final grades and plant locations with approvable of the Engineer.

Delivery: Deliver plants just prior to planting. Deliver all packaged materials in containers showing weight, analysis and name of manufacturer that the Contractor will use during the planting operations. Contractor shall protect materials from deterioration during delivery and while stored on site. Submit certification of contents, quantity and source of all plants and planting materials to the Engineer for approval.

Protection of Plant Materials: If there is a delay in planting for more than 6 hours after delivery, protect the plants from the sun, wind and mechanical damage. Keep roots and root balls moist, watering as often as necessary to maintain good health and vigor. Remove and replace all damaged and unhealthy plants as directed by the Engineer. Do not bend or bind any plants in such a manner as to damage bark, break branches or destroy their natural shape. Provide adequate protection for root systems. Do not handle container plants by their foliage, branches or trunks.

Pre-Delivery Inspection of Materials: Prior to delivery of any species to the project site, the Contractor shall make the necessary arrangements with the Engineer for an inspection of the plant material. The Contractor will pay for travel and expenses to non-local nurseries, out of the metropolitan Phoenix area, when requested by the Contractor. Remove immediately from the site any plants found to be unsuitable in growth habit or condition, or plants, which are not true to the specification, and replaced with acceptable plants.

The Contractor shall notify the Engineer at least 48 hours in advance for any inspection of the plant material at the offsite location. Prior to notifying the Engineer, the Contractor shall physically verify that all of the designated plant material meets the specified sizes and conditions.

Constructions of Plant Pits and Trenches: Prior to planting perform a percolation test on all plant pits to determine that adequate drainage exists. Fill the pits full with water. Allow the pits 24 hours to drain. If any pit has not substantially drained, install a rock caisson. Each caisson shall have a four-foot deep (4') by 8-inch (8") diameter hole filled with 1-1/2-inch diameter crushed stone filled to the bottom of the pit. Increase the depth of the caissons if encountering ground water, caliche, or impervious rock.

No separate measurement or payment will be made for the installation of rock caissons if required the cost of which is considered included in the item of work.

430.5.6 Shrub and Tree Pits: ***Modify the second paragraph to read:***

Plant Backfill Mix: The planting backfill mix for trees, shrubs, ground covers and accent plants shall consist of equal parts 1/3 native soil, 1/3 stabilized organic compost, and 1/3 sand. Provide twenty (20) pounds of Live Earth Brand (www.livearth.com) Granular Soil Conditioner, or equal, per cubic yard of plant backfill mix.

430.8 PLANT GUARANTEE AND MAINTENANCE: ***Add the following:***

Contractor shall begin maintenance immediately after the Engineer has accepted the plantings.

Contractor shall maintain the landscape work until final acceptance, but in no case less than 120 days after the Engineer accepts the work.

Contractor shall instruct the Contracting Agency's Maintenance personnel in the proper maintenance and operation of landscape work.

The Contractor shall furnish all labor, materials, equipment, tools, services, skill, etc., required to maintain the landscape in an attractive condition throughout the contract period. Maintenance of plant materials shall include, but not be limited to, pruning, weeding, fertilizing, irrigation programming, irrigation emission point adjustments, pest control, and landscaped areas trash and debris clean up and removal, per specifications. Maintenance shall be performed a minimum of once a week throughout the maintenance period.

Contractor Supervisor shall be responsible for the training and supervision of the maintenance personnel's performance of their duties during the maintenance period.

All materials as noted (but not limited to this list) shall conform to the bid specifications:

- Pre-emergent
- Fertilizer, soil amendments, and conditioners
- Plant material
- Decomposed granite

Tree and Shrub Care: Maintain trees and shrubs in a healthy, growing condition by performing necessary operations, including the following:

Pruning: Prune and shape only as necessary to maintain the usual form of the plant, to stimulate growth, to maintain growth within space limitations, to provide for sight visibility, and to maintain a natural appearance. Do not shear plant material. Any plant material improperly maintained, as determined by the Engineer, the Contractor shall remove and replace at no additional cost to the Contracting Agency.

Staking: Inspect stakes weekly and adjusted or remove as necessary or as directed by the Engineer.

Weed Control: In groundcover area keep areas free of weeds. Use recommended, legally approved, herbicides. All herbicides must be applied by a licensed applicator. Avoid frequent soil cultivation.

Ground Cover Care: Foster attractiveness at all times by following these practices:

Decomposed Granite Areas: Inspect landscape decomposed granite weekly. Remove man-made debris, weeds, and grass controlled with chemicals. Any erosion that has occurred in any granite areas the Contractor shall be remedy, repair and replace decomposed granite at the Contractor's expense.

Weed Control: Keep all landscape areas free of broadleaf or grassy weeds, with pre-emergent and/or selective contact herbicides. Cultivating or hoeing weeds is not an allowed practice. The Contractor shall eradicate all noxious weeds prior to final acceptance of the project.

Unless otherwise authorized, the Contractor shall maintain all landscape areas, as they complete them during the course of work and on a continuous basis and until the Engineer's final project acceptance. The Contractor shall provide adequate and experienced personnel to accomplish the maintenance. Maintenance shall include keeping the landscape areas free of

debris on a weekly basis, chemical control and hand removal of weeds, fertilization as needed, cultivating the planting areas, and repairing tree stakes. An Arizona pesticide licensed contractor shall perform all chemical control.

All plant material and installation shall be 100% guaranteed by the Contractor for an additional 120 Calendar Days following completion of the Plant Establishment Period and the acceptance of the planting areas by the Engineer.

Contractor shall replace plants within seven (7) days of notification from the Engineer. Remove and replace dead, damaged or vandalized plants. Install replacement plants of the same kind and size as originally specified and as described in the contract documents.

The Contractor shall maintain the irrigation system as specified in Section 440 and make any necessary repairs regardless of cause to assure a complete and operational system as originally designed and constructed. Make repairs within 24 hours of detection.

The Contractor shall notify the Engineer 48 hours prior to the application of any chemical treatments. Qualified personnel shall do chemical mixing and use the application equipment in the presence of the Engineer. An Arizona pesticide licensed contractor shall perform all chemical control. The Engineer shall approve the personnel, materials and methods of application of chemicals prior to beginning the operation.

There shall be no separate measurement and payment for the Plant Guarantee and Maintenance Period. This cost shall be included in landscape bid items for: plant materials and inert groundcover. Contracting Agency will hold ten percent of each landscape bid item amount in addition to retention for distribution until after the maintenance and establishment period.

430.9 PLANT ESTABLISHMENT PERIOD: Delete in its entirety and replace with:

The Contractor shall request an inspection by the Engineer when the Contractor believes the landscape work is substantially complete and the planting and related work is complete. After this initial inspection, and subject to his approval of the work, the Engineer will issue a written field notification to the Contractor setting the effective beginning date for the Plant Establishment Period. The Plant Establishment Period for trees, shrubs, and ground cover shall be for a period of 120 days, but is subject to extension by the Engineer if the Contractor improperly maintains the landscape planting, appreciable plant replacement is required, or

other corrective work becomes necessary. This work is incidental to other bid items within this section and there is no separate payment for the Plant Establishment Period.

At final project acceptance or at the end of the plant establishment period, the Engineer will make a final acceptance inspection of the planted areas.

430.10 MEASUREMENT AND PAYMENT: Delete the second paragraph in its entirety and replace with:

The basis of Measurement and Payment for plants is the price bid per each complete in place as shown on the project plans, details, and Special Conditions. Payment shall be full compensation for all labor, material, equipment, and incidental and appurtenant work for planting trees and shrubs.

The basis of Measurement and Payment for the decomposed granite at the various gradation sizes will be at the contract unit prices bid per Square Foot for the inert materials as shown on the project plans, details, and Special Conditions and shall include all costs, materials, equipment, labor, and operations necessary for the finished grading (parkway grading), installation, and associated weed control and pre-emergent applications for installing decomposed granite.

Add the following new Section to the MAG Specifications:

SECTION 431 LANDSCAPE AND IRRIGATION RESTORATION

431.1 GENERAL: Contractor shall verify exact limits of disturbance with Engineer in all areas designated on the plans as Landscape and Irrigation Restoration Areas. All work shall be in accordance with these specifications and standard Sections 430 and 440.

Contractor shall provide new decomposed granite and salvage and reset all boulders in all disturbed areas. Contractor shall match color and gradation of any decomposed granite in these Landscape and Irrigation Restoration Areas, and supply new decomposed granite as necessary to bring disturbed areas back to original condition that shall be a minimum of 2 inches in depth and comply with the project plans, details, and special conditions. Contractor shall contact Engineer for review and approval of Landscape and Irrigation Restoration materials.

Contractor shall replace any existing concrete sidewalk, header, lighting and electrical components, etc. in all disturbed areas. Contractor shall match color, finish, and size of any concrete in these Landscape and Irrigation Restoration Areas and supply any concrete as necessary to bring disturbed areas back to original condition and shall be in compliance with the project plans, details, and special conditions. All replacement concrete shall be a minimum of MAG Class 'A' and shall be in accordance with MAG Standard Sections 300 and 700. Contractor shall contact Engineer for review and approval of Landscape and Irrigation Restoration materials. All electrical work shall be in conformance with MAG, NEC latest standards, and these Special Conditions.

The work shall also consist of reconstructing or repairing the existing irrigation system in areas designated on the plans. The Contractor shall be required to repair and or replace all disturbed or damaged irrigation components, returning their operation to 100 percent within 24 hours following initial disturbance of any of the irrigation components. The existing irrigation that will be impacted includes the drip irrigation system for the trees, shrubs and ground covers. The work shall include furnishing and installing the various irrigation sleeving, piping, drip emitters, gate valves, electric control valves, wiring, and valve boxes, including required excavation and backfill at the designated locations shown on the project plans or as directed by the Engineer. All work shall be in accordance with the details shown on the project plans, or as directed by the Engineer and the requirements of these Special Conditions. The existing irrigation components shall be protected and maintained in their current condition where feasible or repaired, replaced, extended and reconnected in areas including but not limited to, those areas

that are disturbed during the construction, areas shown on the project plans or as directed by the Engineer. The Contractor shall be required to maintain water to all existing plant materials throughout the duration of the contract using repairs, reconnections, replacements or rerouting of the system as approved by the Engineer. The Contractor shall ensure that the entire existing and new irrigation systems within the project limits are operational and functional and shall test and receive approval from the Engineer prior to proceeding with any other related work. The Engineer shall inspect and give approval prior to backfilling.

Construct the irrigation system using the emitters, valves, piping, fittings, controllers, wiring, and other components, of sizes and types to match existing equipment and as called for in these specifications. The system shall be constructed to grades and conform to areas and locations as shown on the drawings.

All replacement or repair materials shall match the existing damaged materials. Irrigation materials and components shall be from the same manufacturer as originally installed. Emitters shall have the same volume output as original. PVC pipe may be from a different manufacturer but the grade shall be the same as originally installed. All mainline fittings shall be Schedule 80; all lateral fittings shall be Schedule 40.

431.2 CONSTRUCTION REQUIREMENTS:

431.2.1 Protection of Existing Vegetation: The work shall include the protection of all existing plant material. Contractor shall take great care to protect in place all existing plant material. Contractor shall replace in like kind and size any existing plant material removed, damaged, or destroyed at no cost to the Contracting Agency and to the satisfaction of the Engineer. The Contractor shall identify and the Engineer review existing plant materials within the disturbance areas. Salvage and relocate or replace all plant material in conflict with the roadway construction as designated in Landscape and Irrigation Restoration Areas in like kind and size per the direction of the Engineer.

Identify, protect, and maintain existing vegetation within the protected areas indicated on the Contract Drawings during the Contract from the Notice-To-Proceed to Final Acceptance. Perform the Work of this Section in accordance with the standards of the Tree Care Industry Association (TCIA). Do not perform any work within the protected areas unless approved by the Engineer. Do not store materials within the protected areas. Do not permit vehicle parking, foot traffic, or other activity not approved in writing by the Engineer within the protected areas. Provide labor and new and undamaged materials that constitute “Best Practice” to meet the letter and intent of this Contract. Follow the safety requirements of ANSI Z133.1.

431.2.2 Verification of Conditions: Prior to the start of construction, conduct on-site inspections of plants and vegetation with the Engineer, and identify and inventory the plants and vegetation that are to remain in place during this area tour. Field measure and stake Project improvements as needed for establishing the location and limits of disturbance.

431.2.3 Construction within Protected Areas:

431.2.3.1 Demolition and Construction Activities: Perform demolition and construction activities within protected areas in a manner that minimizes damage to tree roots and branches. Use hand tools where necessary. Make minimal use of construction equipment within the protected areas. Use such equipment within the protected area only when approved by the Engineer. Notify the Engineer 72 hours prior to the use of the equipment within the protected areas. Provide bridging materials, such as protective planking, in protected areas where such construction equipment operates. When utilities must be installed within protected areas, bore under the protected areas whenever possible instead of digging open trenches through them.

431.2.3.2 Excavating around Trees and Shrubs: Excavate around trees and shrubs within protected areas only where indicated on the Contract Drawings. When work that may impact protected plants occurs, plan the work to assure minimal disturbance to the plants, follow good horticultural practices, and direct pruning and wound treatment in accordance with this Section.

431.2.3.3 Protecting Root Systems: Protect root systems from damage due to run-off or spillage of noxious materials in solution during storage or construction activities. Protect root systems from flooding or soil erosion. Provide a minimum of 2 layers of untreated burlap as a covering over exposed root face areas. Do not disturb or excavate protected root zone areas unless specifically authorized to do so by the Engineer. Where trenching for utilities is required within protected areas, excavate under or over roots by hand digging under the authority of the Engineer. If large roots are encountered, or if a condition potentially fatal to the plant is observed, notify the Engineer prior to continuing or commencing work. Do not cut main lateral roots or taproots, those 2-1/2 inches in diameter or greater; however, smaller roots that interfere with the installation of new work may be cut. Cut smaller roots with sharp pruning instruments, but do not break or chop roots. Excavate root systems by hand in areas where new construction is required within protected areas. Use a narrow-tine spading fork to expose roots. Cut exposed roots back from the new construction. Do not permit exposed roots to dry out before permanent backfills is placed. Provide temporary earth cover, or pack the roots with

peat moss, and wrap the roots with burlap. Water and maintain the roots in a moist condition, and temporarily support and protect them from damage until they are permanently relocated and covered with backfill. Provide imported topsoil backfill to cover exposed roots in soil cuts. Do not overload root zones by placing backfill above the existing grade.

431.2.3.4 Protecting or Restoring Irrigation System: The work under this item shall consist of testing, reconstructing or modifying the existing irrigation systems that are damaged by the roadway improvements.

Some as-built information for the irrigation areas that are expected to be disturbed are available, however the data on those as-builts have not been confirmed and contractor assumes all responsibilities for any damage caused by their actions to the existing system at no cost to the owner. The underground location of the irrigation facilities is unknown. The contractor shall take care to minimize disturbance to these areas.

All construction for the roadway improvements shall be coordinated to ensure that the existing irrigation system and its associated electrical controls are fully functional within 48 hours of any modifications. Any work activities that require more than 48 hours of outage shall be coordinated with the Engineer for approval and alternate irrigation methods such as truck watering or temporary "rain for rent" systems will be required as directed by the Engineer. The cost of alternate irrigation methods necessary due to extended irrigation system outages will be at the contractor's expense, at no cost to the Contracting Agency.

All work shall be in accordance with the details shown on the project plans, or as directed by the Engineer and the requirements of these Specifications. All work shall be inspected and approved by the Engineer prior to backfilling.

431.2.4 Repair/Restoration: Restore all landscape areas and other surface improvements that were to remain in place, but that have been damaged by the Contractor's actions or omissions. Restore landscape areas as nearly as possible to the original condition.

431.2.4.1 Repairing Damaged Plants: Where damage to vegetation has occurred, prune plants in accordance with Tree Care Industry Association (TCIA) standards to remove branches from the work area, and where needed to maintain the health of the plant. Remove material in a manner that yields minimal impact and is approved by the Engineer.

431.2.4.2 Replacing Damaged Plants: Remove plants that were identified by the Engineer to remain in place, but that are damaged during the course of the work to an extent that they

cannot be repaired; and replace the damaged plants with new plants of the same type and value. Remove and replace damaged plants as directed by the Engineer. Base the value of plants that are to be replaced on the criteria found in the Council of Tree and Landscape Appraisers' "Guide for Plant Appraisal", as evaluated by the Engineer. Remove and replace damaged plants at no additional cost to the Contracting Agency. Plants shall be replaced at the following sizes or as directed by the Engineer.

Existing Plant Material Size	Replacement Size
Trees:	
2" Caliper	24" Box
4" Caliper	36" Box
6" Caliper	54" Box
Shrubs:	
All Existing Shrubs	5 Gallon

431.2.5 Cleaning: Clean up the ground areas under plants remaining in place as directed by the Engineer. Wash off foliage that becomes soiled, or when directed to do so by the Engineer. Remove materials that fall or flow into protected areas. Provide protective barriers as needed or as directed by the Engineer to prevent materials from falling or flowing into protected areas.

431.2.5.1 Waste Management: Gather and dispose of spoils and vegetative waste, including dead and damaged plants and the trimmings accumulated from the operations to clear and remove existing vegetation. Dispose of spoils and vegetative waste off-site in conformance with the regulations imposed by the local authorities, and in an area approved for such disposal by the local authorities.

431.2.6 Maintenance of Vegetation: Care for and maintain existing vegetation within protected areas as indicated on the Contract Drawings. Provide water and labor as needed for plant health, growth, and for washing down soiled foliage. Provide fertilizer, deep root fertilization, pesticides, anti-desiccants, and other materials and labor as needed to maintain the existing plants in a healthy and growing condition. Provide plant maintenance for the duration of the Contract, until Final Acceptance.

431.2.7 As-Builts: The Contractor shall keep and maintain separate record drawings ("field redlined as-builts"), corrected shop drawings, or other drawings necessary for the Engineer to show the landscape and irrigation work as constructed. These field redlined as-builts shall be kept on the worksite and they shall be maintained clear, accurate and current as changes occur

that may differ with the bid set construction documents and addendums. All landscape and irrigation related elements buried or backfilled shall be recorded in the "field redlined as-builts" prior to burial and backfilling occurs. The Contractor shall submit the updated field redlined as-built plans with monthly pay estimates to the Engineer. Complete field redlined as-built plans that the contractor maintains shall be submitted to the Engineer in a format that will allow the Engineer to create the formal as-built plans. The Contractor shall submit the field redlined as-built plans to the Engineer prior to the end of each construction phase. No extra measurement or direct payment will be made for this work; the cost being considered included in the price of the contract items.

431.3 MEASUREMENT AND BASIS OF PAYMENT:

Measurement and Payment will be made for Landscape and Irrigation Restoration per the Square Foot of Landscape and Irrigation Area that is restored including all labor, materials, and incidentals to complete the work

SECTION 440 SPRINKLER IRRIGATION SYSTEM INSTALLATION

440.1 DESCRIPTION: *Add the following:*

The Contractor shall furnish all labor, materials, tools, equipment, and services necessary for the execution and completion of the irrigation system work as indicated on the drawings and as described in these specifications and the General Conditions.

The plans indicate a detailed layout of irrigation lines, laterals, sprinklers, and emitter locations; however, for graphic clarity some of the piping on the plans is diagrammatically outside of the planting areas. The Contractor shall follow the intent of the plan layout and shall review and obtain written approval from the Engineer for any requested changes.

Due to the scale of the drawings, it is not possible to indicate all offsets, fittings and sleeves that may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such offsets, fittings and sleeves as may be required to meet such conditions. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.

The irrigation system shall be constructed using the emitters, valves, piping, fittings, controllers, wiring, and other components, of sizes and types as shown on the drawings and as called for in these specifications. The system shall be constructed to grades and conform to areas and locations as shown on the drawings.

Add the following new sub-section to the MAG Specifications:

440.1.1 Electrical Service to Irrigation Controller:

General: The work under this item consists of furnishing and installing all materials and equipment. Providing all tools, and labor necessary, including excavation and backfill, new conduit, pull boxes between the existing power sources, and electrical meter cabinets at the locations designated on the project plans and in accordance with the details shown and the requirements of these Special Conditions.

The required work shall also include complete testing, installation of the electrical meter cabinet, concrete base and distribution panel for the electrical service, at the location designated on the project plans.

Materials: The electrical meter pedestal shall be a rainproof Type 3A enclosure, 120/240V. Cabinet and hood shall be of stainless steel construction. The hinged door shall be vandal resistant. Meter socket shall be 100 amps with test blocks, and jaws shall be compatible with SRP meter requirements. Main breaker shall be 100 amps. Factory wiring shall be 600 volt rated.

Provide a MAG class 'A' concrete foundation in accordance with the detail shown in the plans. The base shall include the conduit stub outs and rigid metal conduit risers as shown.

All conduits shall be 2½-inch DB 120, SRP approved.

All services shall be 120 volt, single phase, two-wire with ground.

Provide all electrical meter cabinets with 2-inch x 4-inch brass address tags. Tags shall have ¼-inch tall stamped letters and numbers.

Construction Requirements: Immediately following the award of contract and prior to the beginning of work, the Engineer will contact Salt River Project (SRP) advising of approximate startup date:

Salt River Project
Tramaine Thornberg
(602) 236-0832

Completing the advisory will start arrangement for the pre-designed Contracting Agency electrical facilities.

The Contractor shall construct the new electrical meter cabinets at the locations shown on the plans or as directed by the Engineer. Install the electrical meter cabinet using a pad-mounting base and anchor bolts. Concrete pad shall be 24- inch x 24-inch x 18-inch and shall be class 'A' concrete.

The Contractor shall install new conduit runs with pull boxes between the SRP power sources and the new electrical meter cabinets at the locations shown on the plans and as directed by the Engineer in consultation with SRP. The Contractor shall install a new J-Box approximately 5 feet from the power source then run 2½-inch DB 120 conduit and sweeps from the J-Box towards the power source. The Contractor shall provide a 3 feet x 3 feet pull hole and leave one conduit sweep for SRP crews to connect to the power source. The Contractor shall install 2½-

inch DB 120 SRP approved conduit and sweeps from the J-Box adjacent to the power source to the electrical meter cabinets. The Contractor shall be responsible for all necessary pull line in all conduit runs. SRP will pull the conductor for the services from the electrical meter cabinets to the J-Boxes and power sources after receiving a clearance from the SRP meter department.

Pull boxes shall be installed at the maximum 350 foot intervals, at major changes in direction, at junctions, as detailed and as directed by the Engineer.

Install the services per SRP Electric Service Requirements (available at https://www.srpnet.com/electric/business/specs/ess.aspx).

An SRP inspector will inspect all trench and conduit prior to closing the trench. Contact Tramaine Thornberg (602) 236-0832 to arrange for inspections and meter clearances.

All electrical meter cabinets shall have brass address tags riveted to their surface in a readily visible position. Stamp the addresses on the brass tag so it will be legible as normal weathering occurs.

Measurement and Payment: The accepted quantities of Electrical Service to Irrigation Controller will be paid at the contract unit price per each. The price shall be full compensation for the work required at each location, complete in place, as described herein and on the project plans, including excavation, backfill, pull boxes, conduit with pull line, pedestals, bases, and any required coordination with SRP, permits and fees.

440.2 GENERAL: A*dd the following:*

The plans indicate a detailed layout of irrigation lines, laterals, sprinklers and emitter locations; however, some of the piping on the plans is diagrammatically outside of the planting areas for graphic clarity. The Contractor shall follow the intent of the plan layout and shall review and obtain written approval from the Engineer for any requested changes. The Contractor shall maintain project record (as-built) drawings during the irrigation system construction as described below:

> Maintain on-site and separate from documents used for construction, one complete set of contract documents as Project Record Documents. Keep documents current on a daily basis. Current up-to-date Record Drawings are a prerequisite for scheduled payments. Do not permanently cover work until recording Record Drawing information. Record pipe and wiring network alterations. Record installed work that is different from shown on the construction drawings. Record accurate reference dimensions, measured

from at least two permanent reference points, of each irrigation system valve-assembly, each controller, each sleeve end, each wire splice location, each stub-out for future pipe or wiring connections, and all other irrigation components enclosed within a valve box.

Prior to Final Review, obtain from the Engineer a reproducible Mylar copy of the drawings. Using technical drafting pen, duplicate information contained on the project drawings maintained on site. Label each sheet "Record Drawing". Completion of the Record Drawings will be a prerequisite for the Final Review.

The irrigation system shall be constructed using the emitters, valves, piping, fittings, controllers, wiring, and other components, of sizes and types as shown on the drawings and as called for in these specifications. The system shall be constructed to grades and conform to areas and locations as shown on the drawings.

All underground work shall be inspected and approved by the Construction Manager or Town representative prior to Contractor backfilling areas.

Add the following new sub-sections to the MAG Specifications:

440.2.1 Permits: The Contractor shall obtain and pay for all permits and fees for installation or construction of the work included under this section, required by legally constituted authorities having jurisdiction, each at the proper time. He shall also arrange for and pay all costs in connection with any inspections and examination required by these authorities.

440.2.2 Execution: The Contractor shall examine the work areas and working conditions that will affect the work of this section. The Contractor shall not proceed with work until correcting the unsatisfactory conditions.

440.2.3 References: Conform to the requirements of reference information listed below except where requirements are more stringent or are shown or specified in the Contract Documents.

American Society of Testing Materials (ASTM) - Specifications and Test Methods specifically referenced in this Section, and Underwriter Laboratories (UL) - UL wires and cables, Contracting Agency Supplements to MAG and MAG Standards.

440.2.4 Quality Assurance: A licensed and bonded plumber(s) shall execute work involving plumbing for installation of meters, vaults, meter boxes, water taps, copper piping, backflow

preventer(s), and related work. Secure a permit from Contracting Agency at least 48 hours prior to start of installation.

Tolerances: Specified depths of mains and lateral pipes are minimums. Settlement of trenches is cause for removal of finish grade treatment, refilling, re-compaction, and repair of finish grade treatment.

Coordinate work with other trades.

For a period of one year (365 days) from Final Acceptance, the Contractor shall guarantee/warranty irrigation materials, equipment, and workmanship against defects. The Contractor shall replace any pavement damage resulting from the installation of the irrigation system and repair damage to grading, soil preparation, or planting at no additional costs to the Contracting Agency. Make repairs within three (3) days following notification by the Engineer.

440.2.5 Cleaning: Maintain continuous cleaning operation throughout the duration of the work. Dispose of, off-site at no additional cost to the Contracting Agency, all trash or debris generated by installation of the irrigation system.

440.2.6 Operation and Maintenance Manuals: Submit four (4) operation and maintenance manuals to the Engineer for review prior to final acceptance. The manuals should include the complete cut sheets and repair material breakdowns for all materials and products used; guarantee statement, complete operating and maintenance instructions on all major equipment. The Contractor shall provide a demonstration to maintenance personnel, with Engineer present, of how to adjust and maintain all emitter types, controller functions, and recommended controller programs, as established by the Contractor. The Contractor shall also review recommended watering rates and irrigation schedules for new plant materials.

440.2.7 Preliminary, Substantial, and Final Walk-Through Inspections: Arrange for a preliminary walk-through with the Engineer, when the entire system is operational. Operate each zone in its entirety, additionally, open all valve boxes and expose item covered, if directed. Generate a list of items to be corrected and make adjustments, “fine tuning” the entire system by regulating valves, and setting pressure regulators at proper and similar pressure to provide proper coverage. Flush and adjust all emitters for optimum performance while preventing water from getting onto walks, roadways, and buildings. Adjustments may include, at no additional cost to the Engineer and the Contracting Agency, additional emitters, tubing, and flush end caps as required.

The Contractor shall correct all items generated from the preliminary walk-through and then arrange for a Substantial Completion walk-through. The Contractor shall rework any items deemed not acceptable by the Engineer to the Engineer's complete satisfaction. The maintenance period will not begin unless authorized by the Engineer. Provide all accessories, charts, record drawings and equipment, as required, before scheduling the Final walk-through.

Following the Landscape Maintenance Period the Contractor shall schedule a Final Walk-through inspection to review the system and make any necessary adjustments to the watering schedule.

440.3 MATERIALS:

Add the following new sub-sections to the MAG Specifications:

440.3.1 Equipment to be Furnished: All materials to be new and bear the appropriate National Association seal of approval for example, NSF, US, etc. Procure similar equipment from the same manufacturer and internal parts shall be common and interchangeable. Parts listing and source replacement will be furnished to the Engineer.

In addition to the materials required to complete the work as shown on the plans and as directed by the Engineer and these specifications the Contractor shall be required to provide additional spare parts and equipment necessary to utilize the installed irrigation components, see related requirements under 440.10.1 Project Closeout.

440.3.2 Submittals: Prepare and make submittals in accordance with conditions of the Contract, and as follows: A minimum of thirty (30) days prior to beginning work on the irrigation system the Contractor shall submit one electronic copy in PDF format of manufacturers' catalog cuts, specifications, and operating instructions for equipment shown on the materials list covering materials listed below and any other items requested by the Engineer or that Contractor intends to utilize on the project. Do not order materials until the Engineer reviews and approves the products. Quantities of materials need not be included.

Submit the following:

- Pipe
- Automatic Controller
- Controller Grounding Materials
- Drip Irrigation Equipment
- Fittings and Solvents

- Wire and Connectors
- Backflow Preventer
- Ball Valves
- Pressure Regulating Valves
- Backflow Preventer Enclosure
- Valve Boxes
- Pressure Regulators
- Gate Valves
- Automatic Control Valves
- PVC Nipples
- Vaults (Contracting Agency Std.)
- Valve I.D. Tags
- Quick Couplers
- Meter Box (Contracting Agency Std.)
- Meters (Comply with Contracting Agency Standards)
- Geotextile Fabric

Shop Drawings: Submit shop drawings called for by the details. Show products required for proper installation, their relative locations, and critical dimensions.

All items shall be those specified and approved by the Engineer. The Contractor shall not make substitutions without approval.

All submittals or shop drawings that are rejected in whole or in part shall be resubmitted and approved by the Engineer prior to the start of any field operations.

440.3.3 Staking: The Contractor shall mark with powdered lime, routing of pressure supply line and stake locations of various components, control valves and emitters. Unless otherwise specified, the system layout is schematic. Accomplish preliminary adjustments to conform to actual site conditions during staking. Should changes be required the Contractor shall obtain approval of the Engineer prior to actually performing the work. Water connection supplied by the Contractor shall be as shown on the plans or as designated by the Engineer and the Contracting Agency and the utility concerned.

440.5 TRENCH EXCAVATION AND BACKFILL: ***Add the following:***

Waterlines continuously pressurized: 18-inches minimum for 2-1/2 Inch and smaller pipes, 24-inches minimum for 3 Inch and larger pipes.

Control wire: 2-inches minimum below top of mainline pipe, or 18-inches minimum where installed in separate trench from mainline pipe.

Lateral sprinkler lines: 12-inches minimum for 2 Inch and smaller pipes, 18-inches minimum for 2-1/2 Inch and larger pipes.

Pipes in sleeves under pavement shall be installed at mainline depth or 36 inches minimum when under driving surface.

Pipe trenches shall be straight but if obstructions necessitate a change of direction, follow the limits of curvature for PVC pipe in strict accordance with pipe manufacturer recommendations.

Trenches may curve to change direction or avoid obstructions within the limits of the curvature for PVC pipe. Minimum radii of curvature are 25 feet for 2-inch diameter pipe, 100 feet for 3- and 4-inch diameter pipe, and 150 feet for 6-inch pipe. All curvature results from the bending of the pipe lengths. No deflection will be allowed at a pipe joint.

Add the following new sub-section to the MAG Specifications:

440.5.1 Bedding, Backfilling, and Compaction: Contractor shall bed pipe bedded in at least three inches (3") of finely graded native soil or sand to provide a firm, uniform bearing. After leveling, surround the pipe with additional finely grained native soil or sand to at least 4" over the top of the pipe.

Bedding sand shall be required when site conditions dictate and clean backfill meeting the specifications is not available. It shall also be required under asphalt and concrete pavements such as roadways, parking surfaces and plazas.

Trench backfill, sufficient to anchor the pipes, may be deposited before pipeline pressure testing, except that joints shall remain exposed until satisfactory completion of testing.

Trenches and excavations shall be backfilled with clean material from excavations. Remove organic material as well as rocks larger than $^{3}/_{8}$" in diameter. Place acceptable material in lifts, the height of which shall not exceed that which can be effectively compacted, depending on the type of equipment and methods used. The Contractor shall backfill trenches and excavations

restoring the specified thickness of topsoil to the upper part of the trench. Compaction shall be in accordance with Section 301.

In appropriate types of soil, the Engineer may authorize the use of flooding in lieu of tamping. Under no circumstances shall vehicle wheels be used for compacting soil.

If settlement occurs and subsequent adjustments in pipe, valves, irrigation heads, turf or other plantings, or other construction are necessary, the Contractor shall make all required adjustments without cost to the Contracting Agency.

440.6 PIPE INSTALLATION:

Add the following new sub-section to the MAG Specifications:

440.6.1 Piping: Provide pipe, schedule and size as shown on the drawings and per Section 757 and as specified herein.

PVC Pipe: Snake pipe in trench as much as possible to allow for expansion and contraction. Provide a firm, uniform bearing for the entire length of each pipeline to prevent uneven settlement. Install pipe in accordance with ASAE Standard, ASAE 376. Pipe shall be clean prior to installation and the Contractor shall maintain the pipe in that condition during installation. When pipe laying is not in progress, close the open ends of the pipe by the approved means.

The Contractor shall provide sand bedding or fine-grained material when encountering ledge rock, hardpan, or boulders. The Contractor shall compact bedding material to provide a minimum depth of bed between pipe and rock of three (3) inches.

Make solvent welded joints in accordance with ASTM D-2855, and use the type of solvent and primer recommended by the pipe manufacturers. Apply primer and solvent to the pipe ends in such a manner that no material is on the interior surface or forced into the interior of the pipe during insertion. Excess solvent on the exterior of the joint shall be wiped clean immediately after assembly. Do not expose the pipeline to water for at least 12 hours after assembling the last solvent welded joint.

Use schedule 80 pipe for threaded joints. Do not use solvent on threaded pipe. Threaded joints shall be hand tightened, with final tightening with a strap wrench as necessary to prevent leaks.

Fittings for use with mainline pipe under 2 ½ Inch and smaller shall be schedule 80, pipe 3 Inch and larger shall be ductile iron.

Fittings for lateral pipe 2 ½ Inch and smaller shall be schedule 40.

All pipe 3 Inch and larger shall be rubber ring gasket pipe.

Protect the pipe from damage during assembly. Use only padded jaw vises and strap wrenches. Remove and replace any nicked, scarred or otherwise damaged plastic pipe. Exercise care to avoid stress on a previously made joint.

When PVC to metal pipe connectors is required, accomplish these connections first. Use a plastic adapter with external pipe thread, screwing it into the metal internal pipe threads. Use Teflon tape, or equal, on all plastic to metal threaded joints. Hand-tighten the joint and utilize a light wrench, as necessary, to prevent leaks.

Separate piping or conduit of different trades crossing each other by a minimum of six (6”) inches in the vertical direction.

Install thrust blocks for fittings on pipe greater than or equal to 3-inch diameter or any diameter rubber gasket pipe. Use MAG ‘A’ 3,000 PSI concrete, 2-mil plastic, and No. 4 Rebar. Use cast-in-place concrete bearing against undisturbed soil. Size, orientation and placement shall be as shown on the installation details. Wrap fitting with plastic to protect bolts, joint, and fitting from concrete. Install rebar as shown on the installation details.

Use a joint restraint harness on pipe greater than or equal to 3-inch diameter or any diameter rubber-gasket pipe wherever joints do not have positive restraint by flanged fittings, threaded fittings, and/or thrust blocks. Use a joint restraint harness with transition fittings between metal and PVC pipe, where weak trench banks or vertical directional changes do not allow the use of thrust blocks, or where extra support is required to retain a fitting or joint. Use bolts, nuts, retaining clamps, all-thread, or other joint restraint harness materials, which are zinc plated or galvanized.

Use restrained casing spacers for gasket pipe routed through sleeves. Provide Ford Uni-Flange Restrained Casings Spacers or approved equal. Construct restrainer body and runner supports of high strength ductile iron meeting ASTM A536 and grade 65-42-12. Connecting rods must meet ASTM A242, ANSI/AWWAC111/A21.11. Construct runners of ultra high molecular weight polymer. Install harness in the manner recommended by the manufacturer and in accordance

with accepted industry practices. Install self-restraining casing spacers at all gasket pipe bell joints and every 10 feet along the gasket mainline pipe installed through sleeves. Provide correct number and type of restraints per manufacturer's requirements.

Provide Flush End Caps at the end of lateral drip lines at locations as shown on the plans or directed by the Engineer. Construct Flush End Caps as per the plan details. There will be no separate measurement or payment for Flush End Caps as the cost of which are considered included in other irrigation items.

Add the following new sub-section to the MAG Specifications:

440.6.2 Sleeves:
Sleeve any piping located under asphalt, concrete, or other pavements, size and schedule as noted on the plans. If not noted, sleeves shall be Schedule 40, and 2 times larger than the pipe being sleeved. Use separate sleeve within the main sleeve for wiring, or as directed by Project Manager.

The Town will permit boring only where pipe must pass under obstructions, which are unmovable, as indicated on the plans, or when approved by the Construction Manager. When any cutting or removal of asphalt and/or concrete work is necessary, it shall be saw cut in accordance with MAG Section 601.2.7. The Contractor shall obtain permission to cut asphalt or concrete from the Construction Manager. When piping on the drawings is shown in paved area, but running parallel and adjacent to planted areas, the intent of the drawings is to install the piping in the planted area.

When any cutting or removal of asphalt and/or concrete work is necessary, it shall be saw cut in accordance with MAG Section 601.2.7. The Contractor shall obtain permission to cut asphalt or concrete from the Engineer. When piping on the drawings is shown in paved area, but running parallel and adjacent to planted areas, the intent of the drawings is to install the piping in the planted area.

Asphalt cut and patch operations necessary for sleeve installation is incidental to the sleeve installation. Do all asphalt cutting with proper equipment to allow straight and true cuts through the full depth of the asphalt. Trench shall be in accordance with MAG Standard Detail 200-1 "T" top. The Contractor shall replace any patchwork if the patch compacts more than 1/2 inch or if any of the patches becomes dislodged within one year. All asphalt shall comply with MAG Section 336.

All sleeves crossing an irrigation district pipe such as RWCD or SRP shall be in accordance with the project plans, specifications, and Irrigation district's Standard Details. In addition, sleeves crossing irrigation district facilities shall be installed with pipe, as called for on the project plans, that utilizes 45 degree bends (preferred) or 90 degree bends (where necessary) at the casing ends to extend the pipe to no lower than the springline of the irrigation district pipeline per the plans. No separate measurement or payment will be made for bore operations and related materials, the cost being included within the casing for which the materials and labor are necessary.

Extend sleeve ends 12 inches beyond edge of hardscape, or sidewalks. Cap sleeve ends and mark with stakes. Provide mule-tape, rope or wire through sleeve and secure each end to stake at surface grade, for future use. Cover sleeve ends with duct tape prior to backfill.

All horizontal borings, as indicated on the plans and as required by these specifications, shall be considered included in the cost of the sleeve being installed.

440.7 VALVES, VALVE BOXES, AND SPECIAL EQUIPMENT INSTALLATION: ***Add the following:***

Install all remote control valves, gate/ball valves, hydrometers, pressure regulating devices, filters, emitter flush plugs, and quick coupling valves in suitable plastic valve access box of proper size as required for easy access to the installed components. All valve boxes supplied shall be Carson turf irrigation boxes as shown on plans or approved equal. Economy boxes are not an acceptable alternative. Install all valve boxes with a geotextile lined gravel sump per project details.

All valve boxes and covers are to be colored tan in decomposed granite and green in turf with all covers embossed with letters/numbers as identified in details.

Backflow Prevention Assembly: Install the Backflow Prevention Assembly per the details shown on the drawings and Town of Gilbert Standard Detail 83-L requirements. Connect the backflow prevention assembly to the water meter with type K hard copper. All copper pipe from the meter to the outlet side of the backflow prevention assembly is considered included in the price of the backflow prevention assembly. Place the backflow prevention unit at the location shown on the project plans. The General Contractor shall provide the water meter to the irrigation contractor; see plans and specifications for more detail. Provide enclosure to secure the assembly. Do not operate the irrigation system until the assembly has been tested and certified to meet the requirements of the Contracting Agency. Backflow Prevention Assembly enclosure shall be powder coated "Tan", in accordance with MAG Standard Section

530, to blend in with surrounding environment. Contractor shall submit paint color chip sample to Engineer for approval prior to painting of enclosure. After the Contractor installs and the Engineer approves the installation of the backflow assemblies, the Contracting Agency will inspect and test the systems to ensure that it is operating correctly and meets with the Contracting Agency standards and approve the system.

All backflow prevention devices shall be painted in accordance with MAG section 530 after final installation, inspection, and approval by Contracting Agency. Color shall be determined by the Contracting Agency. No separate measurement or payment will be made for painting of backflow prevention devices the cost of which is considered included in other items of work.

Wiring: All wiring for remote control valve operation shall be UF-600, UL listed for direct burial usage. The control wire shall be 14 AWG colored red, the common 12 AWG white. Run a spare single green 14-gauge spare wire from the irrigation controller and loop into each of the remote control valve boxes. Place all wires in continuous runs between the Irrigation controller and the valve to which it controls without splices. The Engineer will only allow splices when the run length exceeds 2500 feet. Place all splices in splice boxes and record locations of the boxes on the as-built drawings.

440.8 SPRINKLER HEAD INSTALLATION AND ADJUSTMENT: ***Add the following:***

All emitter heads shall be of the types and sizes as indicated on the plans. Install emitters in relation to finished grade as indicated on the plans.

The Contractor shall be responsible for sprinkler and emitter outlet adjustment for a period of one hundred and twenty (120) days as described in the establishment period below.

440.9 AUTOMATIC CONTROL SYSTEM INSTALLATION: ***Add the following:***

Traditional Power Controller: Automated Central Control System shall be a Rain Bird ESP SMTe Outdoor Modular Smart Controller with weather sensor (expandable up to 22 stations with 3 station increment modules) mounted to 2-inch square galvanized steel post with concrete footing. Controller shall have standard locking outdoor enclosure and be mounted to post at 5ft height. Weather sensor shall be mounted to same post at 8-feet height. All control wires shall be run through center of post with conduit sweeps at bottom through concrete footing. Power supply to controller shall be installed in Galvanized Rigid Conduit and attached to mounting posts with tamper proof conduit brackets. Install controller per manufacturer's

specifications. Contractor shall submit complete shop drawings to Engineer and Contracting Agency to review prior to installation.

Furnish the Contracting Agency Rainbird Landscape Irrigation and Maintenance Remote (LIMR-KIT) with carrying case, fully compatible and with all components for complete operation of control valves with remote. Demonstrate operation of the remote control from each of the controllers to each valve to the Engineer prior to project acceptance, start of maintenance.

Connect the irrigation controller to the weather sensor. The irrigation contractor shall make the connection to the metered 120-volt single-phase power drop provided by the electrical contractor, see electrical plans for additional detail.

The Contractor shall provide station-area coverage maps, sealed in plastic, for each controller installed. Provide surge protection on the power sources.

Automatic remote control valves and master shall be electric solenoid operated of the types and sizes as indicated on the plans. They shall be compatible with the system operating pressure and design. The solenoid shall be for 24 volt, 60-cycle operation. Remote control valves shall have the valve body and bonnet constructed of glass-filled nylon. All valves shall be equipped with stainless steel self-cleaning screen for dirty water applications, and with female pipe thread connections.

The solenoid plunger shall be spring-loaded so the valve, no matter how installed, will operate in any position and shall be constructed of stainless steel. The diaphragm shall be of durable nylon reinforced neoprene. Valve bonnet shall be equipped with an internally operated manual bleed mechanism for manual operation of the valve at any time. Secure the valve bonnet to the valve body by corrosion resistant stainless steel bolts.

Control wiring shall be U.L. approved for direct underground burial and shall be 14-1 AWG minimum size for control wires and 12-1 AWG minimum size for common wires or as noted on the drawings. Place the control and common wiring in the same trench as the mainline, beside the mainline at the bottom of the trench.

Bundle control wires where contained within the same trench and tape together at 10-foot intervals along wire routing. Do not tape wires together where contained within sleeves and conduit. Provide a 24-inch excess length of wire in an 8-inch diameter expansion loop at each 90-degree change of direction, at both ends of sleeves, and at 100-foot intervals along the wire routing. Do not tape wiring within expansion loops.

All wiring for all 120 and 24 volt connections must meet the National Electrical Code and be UL listed.

Make wire connections to remote control electric valves and splices in the field if approved by Engineer using 3M DBY/R-6 or Paige DB14-4 wire splices, no others will be accepted.

It is important that the wire splice be waterproof so that there is no chance for leakage of water and corrosion build-up on the joint.

440.10 FLUSHING AND TESTING: ***Add the following:***

Provide all necessary pumps, bypass piping, storage tanks, meters, supply piping, and fittings in order to perform testing properly. The Contractor shall backfill the trench to prevent movement of the pipe under pressure. Expose couplings and fitting. Purge air from pipeline before test. Subject the mainline pipe to 130 PSI for four (4) hours. Maintain constant pressure to the subject mainline pipe. No allowable pressure loss will be allowed.

Replace any defective pipe, fitting, joint, valve, or appurtenance. Repeat the test until the subject mainline pipe meets the above maximum allowable volume loss during the test period.

Perform an operational test of the irrigation system in the presence of the Engineer and a representative from the Contracting Agency Maintenance Division. Contact the Engineer and Contracting Agency Authorized Representative three working days prior to testing.

A coverage test shall be performed after sprinkler heads have been installed and shall demonstrate that each section or unit in the irrigation system is constructed to provide uniform head-to-head coverage of the areas serviced.

Operation of all valves, flow sensors, gate and ball valves, drip systems, ET devices and remote monitoring equipment (computer central or internet) shall be demonstrated prior to project acceptance and start of maintenance.

Add the following new sub-section to the MAG Specifications:

440.10.1 Project Closeout:

General: All requirements and procedures for submittal of pertinent data relating to closing out of Project upon completion of the project work. Detailed instructions elsewhere in these Specifications may require that certain items listed herein to be submitted prior to Substantial

Completion of the Project. This Section is complementary to the General Conditions and Special Conditions and nothing herein shall be considered to waive any requirements of the General Conditions or Special Conditions.

Submit: Letter from Contractor and Irrigation Controller Manufacturer's Representative guaranteeing four total training sessions for Irrigation Controller Programming. Both Contractor and Irrigation Controller Manufacturer's Representative must sign letter.

Final Payment: Receipt and approval of all items specified in this Section is a prerequisite for final payment.

Record Drawings: Contractor shall provide Record Drawings, which shall clearly show all differences between the Contract work as drawn and as installed. Show all work added to the Contract that is not on the Contract drawings. Contractor shall maintain a set of Record Drawings at the job site. Keep these legible and current and shall be available for inspection at all times by Contracting Agency. The record drawings shall show all changes in the Contract work, or work added, on these Record Drawings in a contrasting color, including work changed by Addendum or Bulletin. In showing changes in the work, or added work, use the same legends as were used on the Contract Drawings. Indicate exact locations by dimensions and exact elevations given in job datum, by depth. Give dimensions from two permanent points. Record Drawings shall indicate exact routing of all piping, irrigation, power, and control wiring, etc., depict any irrigation lateral line modifications or adjustments on the plans. Record Drawings shall contain the names, addresses, and phone number of the Subcontractors. The Contractor shall sign the Record Drawings. The Contracting Agency shall review the Record Drawings and shall be the sole judge of the acceptability of these drawings. Upon Substantial Completion of the Project, Contractor shall submit the redlined record drawings to the Engineer for preliminary review. Contractor shall make all corrections required and resubmit revised copy to the Engineer for review. Upon acceptance of the redlined record drawings and prior to final payment, the Contractor shall submit to the Engineer the corrected and final version of the record drawing redlines. The Contractor will be responsible for recording redlines onto the mylars for the final record set of drawings prior to final project acceptance.

Maintenance Manual and Operating Instructions: Upon completion of the installation of all work, Contractor shall furnish four (4) complete bound copies of operating and maintenance instructions and parts lists for all materials and equipment. Including electrical, irrigation, pump and control items supplied. Operating instructions shall include complete operating sequence, control diagrams, description of method of operating machinery, machine serial numbers, factory order numbers, parts lists, instruction books, supplier's phone numbers and addresses

and individual equipment guarantee. Parts lists shall be complete in every respect, showing all parts and part numbers for ready reference. Assemble Maintenance Manual and Operating Instructions in hardback 3-ring loose-leaf binders. Suitably label and index all material contained therein for ready reference. Upon Substantial Completion of the Project work, submit one copy of the Maintenance Manual and Operating Instructions to Engineer for review. Upon receipt of notice of acceptance, deliver the additional copies to the Contracting Agency.

Guarantees and Warranties: Submit all required guarantees and warranties to the Contracting Agency. Provide all written guarantees, warranties or certificates required. Guarantees and warranties shall be a part of maintenance manual.

Spare Parts and Maintenance Materials: The Contractor shall deliver to the Contracting Agency the spare parts, extra stock and maintenance materials listed below, and shall obtain a signed receipt for these materials. Materials shall be neatly packaged and identified, per each specification section.

Spare parts required prior to project closeout:

- Two (2) of each size remote control valve installed
- Ten (10) of each emitter type and volume installed
- Two (2) keys (5’ handle) for each type of gate and ball valve installed

Semi-final and Final Review: When Contractor is of the opinion that the Project is substantially complete, he shall send to the Engineer a written statement that the Project is substantially complete (naming a date) and shall request a semi-final inspection by the Engineer to determine the status of completion. The Engineer must receive such notice at least three days before the requested inspection date. If the Engineer finds that the Project is substantially complete, he will prepare a Certificate of Substantial Completion, attaching thereto a list or “Punch List” of items to be completed or corrected. If the Engineer does not concur in the Contractor’s claim of Substantial Completion, the Contractor shall continue to maintain the site until the Engineer accepts the project. When all items on the “Punch List” are completed or corrected, the Contractor shall send to the Engineer a statement that the Project is complete and request a final inspection. If the project is complete and all “Punch List” items are completed or corrected, the Engineer will issue a final acceptance letter. After completion of the procedures outlined above, the Contractor shall submit his final application for payment in accordance with the Agreement, the General Conditions and Special Conditions.

Final Checkout of Project and Equipment of Contracting Agency: Before acceptance and final payment, at a time arrived at with the Engineer a complete checkout and test shall be made of all irrigation, mechanical and electrical systems, architectural and structural devices, etc., with the Engineer. For this purpose, each trade concerned shall provide a skilled operating engineer or technician for a period of at least one day. This person, together with selected operating personnel, shall test all systems and devices and demonstrate the complete operation and required maintenance of each.

Maintenance: Maintain irrigation system for duration of 120 calendar days from formal written acceptance by Engineer. Make periodic examinations and adjustments to irrigation system components in order to achieve the most desirable application of water. Following completion of Contractor's maintenance period, Contracting Agency will be responsible for maintaining system in working order during remainder of guarantee/warranty period, for performing necessary minor maintenance, for protecting against vandalism, and for preventing damage after landscape maintenance operation.

The Contractor shall for a period of one year from Final Acceptance, guarantee/warranty irrigation materials, equipment, and workmanship against defects. The Contractor shall replace any pavement damage resulting from the installation of the irrigation system and repair damage to grading, soil preparation, seeding, sodding, or planting at no additional cost to the Contracting Agency. Make repairs within 48 hours following notification by the Engineer. The Contracting Agency has the right to make emergency corrections and back-charge to the contract for his/her costs when determined necessary by the Engineer.

Clean Up: Remove from site machinery, tools, excess materials, and rubbish upon completion of work. Maintain a clean and orderly jobsite on a daily and ongoing basis. Do not allow trash, discarded material and other debris to blow around on the project. Discard all materials off site at an approved sanitary landfill.

440.11 MEASUREMENT AND PAYMENT: *D**elete in its entirety and replace with:***
Payment for the irrigation distribution system is the bid price for each element of work identified on the bid schedule. These unit cost prices shall be full compensation for the system complete in-place as described herein and on the plans. If an item of work is noted on the plans but does not appear on the bid schedule the cost of that item is considered included in the cost of other items of work and no direct measurement or payment will be made.

SECTION III

TRAFFIC SIGNAL, LIGHTING, & INTERCONNECT IMPROVEMENTS

TECHNICAL SPECIFICATIONS

FOR

TOWN OF GILBERT

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS

Project No. ST152

GILBERT, ARIZONA

JULY 2014

SECTION III TRAFFIC SIGNAL, LIGHTING, & INTERCONNECT IMPROVEMENTS

Mayor
John Lewis

Vice Mayor
Eddie Cook

Town Council
Ben Cooper
Jenn Daniels
Victor Petersen
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Jared Taylor

Town Manager
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CivTech Project No. 12-1060

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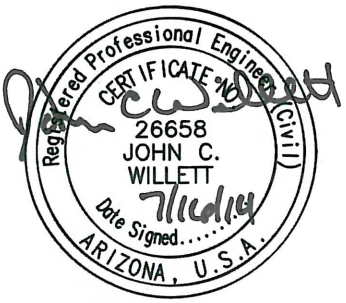


Expires 12-31-16

350.03000 REMOVE & SALVAGE STREET LIGHT POLE:

Description:

The work under this item includes removing and salvaging existing street light poles.

Construction Requirements:

The contractor shall remove the existing street lights as indicated on the plans and salvage to the Town of Gilbert.

During the removal of the street lights, roadway lighting shall be provided from one-side of the roadway at all times.

Method of Measurement:

Remove & Salvage Street Light Poles will be measured as a unit for each light removed and salvaged.

Basis of Payment:

The accepted quantities for Remove & Salvage Street Light Poles, measured as provided above, will be paid for at the contract unit price for each street light removed and salvaged, which shall be full compensation for the work, complete as shown on the plans.

350.50000 REMOVE & SALVAGE EXISTING TRAFFIC SIGNAL:

Description:

The work under this item includes removing and salvaging existing traffic signal equipment.

Construction Requirements:

The contractor shall remove the existing traffic signal equipment as indicated on the plans and salvage to the Town of Gilbert.

The existing traffic signal equipment shall not be removed until the new traffic signal equipment is installed and operational.

The contractor shall coordinate with the Town of Gilbert Police Department to have a uniformed officer on duty to control traffic during the conversion of the traffic signal operation from the existing traffic signal to the new traffic signal.

The traffic signal foundations shall be removed per the requirements of ADOT standard specification section 202.

Method of Measurement:

Remove & Salvage Existing Traffic Signal will be measured on a complete basis and includes the complete removal of the traffic signal equipment and foundations. No measurement will be made for the uniformed officer.

Basis of Payment:

The accepted quantities for Remove & Salvage Existing Traffic Signal, measured as provided above, will be paid for at the contract lump sum price, which price shall be full compensation for the work, complete in place, as specified and described herein.

350.50010 REMOVE PULL BOX:

Description:

The work under this item includes removing pull boxes.

Construction Requirements:

The contractor shall remove the existing pull boxes as indicated on the plans. The removed pull boxes shall become the property of the Contractor and disposed of properly.

Method of Measurement:

Remove Pull Box will be measured as a unit for each pull box removed.

Basis of Payment:

The accepted quantities for Remove Pull Box, measured as provided above, will be paid for at the contract unit price for each pull box removed, which shall be full compensation for the work, complete as shown on the plans.

465.02001 INTERNALLY ILLUMINATED STREET NAME SIGN

Description:
The Contractor shall install new Internally Illuminated Street Name Signs (IINS) and associated equipment where indicated on the project plans.

Materials:
The Contractor shall coordinate with the Town of Gilbert on the design and layout of the illuminated street name signs during the electrical submittal process. The Contractor shall obtain approval from the Town on the design and layout of the sign prior to ordering or fabrication.

Construction Requirements:
The Contractor shall install the new ISNS as a pennant mount to the pole, above the mast arm, in accordance with the manufacturer's recommendations. The Contractor shall furnish and install in the pull box adjacent to the signal pole an individual inline fuse holder, par numbers WPBI – (Rubber Boot) and HEB – (AA Buss Fuse Holders) for each ISNS.

Method of Measurement:
Each new ISNS system will be measured as a unit each, furnished and installed; that includes but is not limited to, tools, labor, and incidentals necessary to complete the work.

Basis of Payment:
The accepted quantity of ISNS, measured as provided, will be paid for at the contract unit price, as designated on the schedule of bid items, complete in place.

471.60043 STREET LIGHT PULL BOX (NO. 3 ½)

Description:
The Contractor shall furnish and install new No. 3 ½ pull boxes for the street lighting, where indicated in the plans.

Materials:
No. 3 ½ pull boxes shall be per Town of Gilbert Standard Details.

Construction Requirements:
The pull boxes shall be constructed per the requirements shown on the Plans and per Town of Gilbert Standard Details. The boxes shall be field located within the intent of the plans. The boxes shall have a locking mechanism that has been approved by the Engineer.

Pull box covers shall be marked “T.O.G. LIGHTING”.

Method of Measurement:
Pull boxes will be measured as fully installed, leveled, and the ground returned to its original grade and condition, and all incidentals necessary to complete the work as specified in these Special Provisions and the Town of Gilbert Standard Details.

Measurement will be in each box fully installed, leveled, and ground returned to its original grade and condition.

Basis of Payment:
Accepted quantities of each type of pull box will be paid as measured, as indicated in the bidding schedule, complete in place, as required on the contract plans and these Special Provisions, which price shall be full compensation for work and materials.

471.60057 NO. 7 PULLBOX W/EXTENSION

Description:
The Contractor shall furnish and install No. 7 pull boxes with extensions as shown in the Plans.

Materials:
No. 7, with extension as required, pull boxes shall be per the Town of Gilbert Standard Details.

Construction Requirements:
The pull boxes shall be constructed per the requirements shown on the Plans and per Town of Gilbert Standard Details. The boxes shall be field located within the intent of the plans. The boxes shall have a locking mechanism that has been approved by the Engineer.

Pull box covers shall be marked “T.O.G. TRAFFIC SIGNAL”.

Method of Measurement:
Pull boxes will be measured as fully installed, leveled, and the ground returned to its original grade and condition, and all incidentals necessary to complete the work as specified in these Special Provisions and the Town of Gilbert Standard Details.

Measurement will be in each box fully installed, leveled, and ground returned to its original grade and condition.

Basis of Payment:
Accepted quantities of each type of pull box will be paid as measured, as indicated in the bidding schedule, complete in place, as required on the contract plans and these Special Provisions, which price shall be full compensation for work and materials.

471.61112 SCH 40 PVC ELECTRICAL CONDUIT, 2" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (TRENCH)
471.61212 SCH 40 PVC ELECTRICAL CONDUIT, 2½" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (TRENCH)
471.61216 SCH 40 PVC ELECTRICAL CONDUIT, 2½" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (TRENCH) (STREET LIGHTING)
471.61312 SCH 40 PVC ELECTRICAL CONDUIT, 3" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (TRENCH)
471.61314 SCH 40 PVC ELECTRICAL CONDUIT, 2-3" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (TRENCH)
471.61412 SCH 40 PVC ELECTRICAL CONDUIT, 4" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (TRENCH)
471.61414 SCH 40 PVC ELECTRICAL CONDUIT, 2-4" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (TRENCH)
471.61415 SCH 40 PVC ELECTRICAL CONDUIT, 2-4" W/¼" NYLON PULL ROPE AND W/#8 BARE COPPER WIRE (HORIZONTAL BORE)

Description:
The work under these items shall consist of furnishing and installing electrical PVC conduit for traffic signal and interconnect as shown on the Project Plans. The work shall include excavation, installation of conduit, removal of spoil, backfilling, installation of warning tape, connectors and fittings, locating existing conduit when new is to be intercepted with existing, and restoration of the surface to existing condition, including decomposed granite and other landscaping items.

Materials:
All conduit material, including but not limited to fittings, couplers, primer, elbows, and adhesive shall conform to the contract design documents, shall be UL listed, and shall meet the requirements of Section 732 of the ADOT Standard Specifications.

Construction Requirements:
Conduits shall be installed under existing pavement by drilling. Open trench excavation shall be in accordance with Section 203-5.03 of the ADOT Standard Specifications.

Method of Measurement:
Schedule 40 PVC electrical conduit will be measured on a linear foot basis for each size.

Basis of Payment:
Schedule 40 PVC electrical conduit will be paid at the unit price established in the Bid Schedule for all labor, materials, tools and equipment to complete the work.

472.61100 POLE FOUNDATION, TYPE A

Description:
The Contractor shall furnish all materials and shall construct new foundations for the Type A traffic signal poles

Materials:
New Type A pole foundations shall conform to the requirements of Town of Gilbert Standard Details.

Foundations noted in the plans are shown schematically; the Engineer shall review and approve all equipment placement prior to construction.

Construction Requirements:
All signal pole foundations shall be constructed in accordance with the Town of Gilbert Standard Details and the project plans.

Concrete samples shall be obtained each day of pouring for signal foundations. Poles shall not be installed until concrete compressive strength test results are received and approved by the Town.

The Contractor shall pothole all foundations for potential conflicts. The cost associated with this item shall be considered incidental to complete the work associated with this item. Repair of any damaged utility lines shall be at the expense of the Contractor.

Prior to excavation of the foundations, the site must first be inspected and approved by the Engineer.

The foundations shall be set flush with the existing or new curb and sidewalk or flush with the finished grade where there is no curb or sidewalk, except in sloped areas. The Engineer may direct that changes be made in locations due to obstructions or other existing conditions.

If the soil is not stable and a hole cannot be augured, the Contractor may auger/excavate, fill with bentonite slurry, and re-drill the foundation through the slurry at the Contractor's expense. They final hole shall be of the proper size and dimensions and shall be rigid. The forms and the bottoms of the holes shall be thoroughly moistened prior to placing the concrete.

Anchor bolts and conduit stubs will be provided by the Contractor, and shall be placed and held in proper alignment, position, and height during the placing and vibrating of concrete.

High strength bolts, nuts, and washers will be provided by the Contractor, and shall be assembled and bolts torqued as required by the Town of Gilbert Standard Details and the project plans.

Method of Measurement:
Pole foundations will be measured as a unit for EACH unit furnished and installed, that includes but is not limited to, auguring, anchor bolts, reinforcing steel, ground rods, grounding wire, excavation, conduit, backfill, and incidentals necessary to complete the work.

Basis of Payment:
Each pole foundations measured as provided above, will be paid for at the contract unit price for each foundation installed, which shall be full compensation for the work, complete in place as shown on the plans.

472.61400 POLE FOUNDATION, TYPE K OR R

Description:
The Contractor shall furnish all materials and shall construct new foundations for the traffic signal poles.

Materials:
New Type R and W pole foundations shall conform to the requirements of the Town of Gilbert Standard Details.

Foundations noted in the plans are shown schematically; the Engineer shall review and approve all equipment placement prior to construction.

Construction Requirements:
All signal pole foundations shall be constructed in accordance with the Town of Gilbert Standard Details and the project plans.

Concrete samples shall be obtained each day of pouring for signal foundations. Poles shall not be installed until concrete compressive strength test results are received and approved by the Town.

The Contractor shall pothole all foundations for potential conflicts. The cost associated with this item shall be considered incidental to complete the work associated with this item. Repair of any damaged utility lines shall be at the expense of the Contractor.

The Contractor shall schedule a meeting with the Town of Gilbert and the design consultant prior to the Town providing the poles and mast arms. The purpose of the meeting is to determine underground and overhead utility conflicts with proposed signal pole foundations and evaluate whether pole foundations are required to be relocated.

Prior to excavation of the foundations, the site must first be inspected and approved by the Engineer.

The foundations shall be set flush with the existing or new curb and sidewalk or flush with the finished grade where there is no curb or sidewalk, except in sloped areas. The Engineer may direct that changes be made in locations due to obstructions or other existing conditions.

If the soil is not stable and a hole cannot be augured, the Contractor may auger/excavate, fill with bentonite slurry, and re-drill the foundation through the slurry at the Contractor's expense. They final hole shall be of the proper size and dimensions and shall be rigid. The forms and the bottoms of the holes shall be thoroughly moistened prior to placing the concrete.

Anchor bolts and conduit stubs will be provided by the Contractor, and shall be placed and held in proper alignment, position, and height during the placing and vibrating of concrete.

High strength bolts, nuts, and washers will be provided by the Contractor, and shall be assembled and bolts torqued as required by the Town of Gilbert Standard Details and the project plans.

Method of Measurement:
Pole foundations will be measured as a unit for EACH unit furnished and installed, that includes but is not limited to, auguring, anchor bolts, reinforcing steel, ground rods, grounding wire, excavation, conduit, backfill, and incidentals necessary to complete the work.

Basis of Payment:
Each pole foundations measured as provided above, will be paid for at the contract unit price for each foundation installed, which shall be full compensation for the work, complete in place as shown on the plans.

472.62045 SERVICE PEDESTAL FOUNDATION

Description:
The Contractor shall furnish and install a new service pedestal foundation in the southwest corner of Warner Road and Higley Road, in accordance with the Town of Gilbert Standard Details, the plans, and these special provisions.

Materials:
The Contractor is responsible for providing and installing a foundation for a MYERS or TESCO meter pedestal.

The cabinet foundation shall be constructed in accordance with Town of Gilbert Standard Details.

Construction Requirements:
The construction shall be in accordance with Town of Gilbert requirements.

Method of Measurement:
Each service pedestal foundation will be measured as a unit each, furnished and installed; that includes but is not limited to, foundation, cabinet, tools, labor, and incidentals necessary to complete the work.

Basis of Payment:
The accepted quantity of service pedestal foundation, measured as provided, will be paid for at the contract unit price, as designated on the schedule of bid items, complete in place.

472.63000 CABINET FOUNDATION

Description:
The Contractor shall furnish and install a new cabinet foundation in the southwest corner of Warner Road and Higley Road, in accordance with the Town of Gilbert Standard Details, the plans, and these special provisions.

Materials:
The Contractor is responsible for providing and installing a foundation for a Town furnished cabinet.

The cabinet foundation shall be constructed in accordance with Town of Gilbert Standard Details.

Construction Requirements:
The construction shall be in accordance with Town of Gilbert requirements.

Method of Measurement:
Each cabinet foundation will be measured as a unit each, furnished and installed; that includes but is not limited to, foundation, cabinet, tools, labor, and incidentals necessary to complete the work.

Basis of Payment:
The accepted quantity of cabinet foundation, measured as provided, will be paid for at the contract unit price, as designated on the schedule of bid items, complete in place.

473.73000 PEDESTRIAN PUSH BUTTON W/SIGN

Description:
The Contractor shall install the Town of Gilbert furnished pedestrian push button assemblies where indicated on the project plans.

Construction Requirements:
The pedestrian push button assembly shall be installed in accordance with ADOT Standard Drawing T.S. 11-1. Mounting height shall be a maximum of 42".

Method of Measurement:
Pedestrian Push Button with Sign will be measured on an each basis.

Basis of Payment:
Pedestrian Push Button with Sign measured as provided above, will be paid for at the contract unit price for each pedestrian push button assembly installed, which shall be full compensation for the work, complete in place as shown on the plans.

474.60100 TYPE A SIGNAL POLE

Description:
The Contractor shall install Town of Gilbert furnished Type A poles, where indicated on the plans.

Materials:
The Contactor shall paint the Type A signal poles brown per the current Town of Gilbert Standard Details and Specifications (TNEMEC-379 Dark Brown 435 & 379 Clear).

Construction Requirements:
The poles shall be installed in accordance with the Town of Gilbert details and the plans.

All steel poles shall be plumbed to the vertical with all traffic signal equipment installed.

Holes shall be drilled and nippled at each site per the plans and Town of Gilbert Standard Details. Touch-up shall be by hot stick method.

Method of Measurement:
The poles will be measured as a unit for EACH type pole installed, which includes but is not limited to equipment, labor, and incidentals necessary to complete the work.

Basis of Payment:
Each pole type measured as provided above, will be paid for at the contract unit price for each pole installed, which shall be full compensation for the work, complete in place as shown on the plans.

474.60760 TYPE R SIGNAL POLE W/50' MAST ARM

Description:
The Contractor shall install Town of Gilbert furnished Type R poles with signal and luminaire mast arms, where indicated on the plans.

Materials:
The Contactor shall paint the Type R signal poles and mast arms brown per the current Town of Gilbert Standard Details and Specifications (TNEMEC-379 Dark Brown 435 & 379 Clear).

Construction Requirements:
The poles shall be installed in accordance with the Town of Gilbert Standard Details and the plans.

All steel poles shall be plumbed to the vertical with all traffic signal equipment installed.

Holes shall be drilled and nippled at each site per the plans and Town of Gilbert Standard Details. Touch-up shall be by hot stick method.

Method of Measurement:
The poles will be measured as a unit for EACH type pole installed, which includes but is not limited to equipment, labor, and incidentals necessary to complete the work.

Basis of Payment:
Each pole type measured as provided above, will be paid for at the contract unit price for each pole installed, which shall be full compensation for the work, complete in place as shown on the plans.

474.60770 TYPE R SIGNAL POLE W/55' MAST ARM

Description:
The Contractor shall install Town of Gilbert furnished Type R poles with signal and luminaire mast arms, where indicated on the plans.

Materials:
The Contactor shall paint the Type R signal poles and mast arms brown per the current Town of Gilbert Standard Details and Specifications (TNEMEC-379 Dark Brown 435 & 379 Clear).

Construction Requirements:
The poles shall be installed in accordance with the Town of Gilbert Standard Details and the plans.

All steel poles shall be plumbed to the vertical with all traffic signal equipment installed.

Holes shall be drilled and nippled at each site per the plans and Town of Gilbert Standard Details. Touch-up shall be by hot stick method.

Method of Measurement:
The poles will be measured as a unit for EACH type pole installed, which includes but is not limited to equipment, labor, and incidentals necessary to complete the work.

Basis of Payment:
Each pole type measured as provided above, will be paid for at the contract unit price for each pole installed, which shall be full compensation for the work, complete in place as shown on the plans.

474.91000 STREET LIGHT POLE – GATEWAY
474.91001 STREET LIGHT POLE – MEDIAN

Description:
The work consists of furnishing and installing roadway light poles, including foundation and luminaire(s), at the locations shown on the plans, including the 1" conduit between the pole foundation and the adjacent pull box and conductors.

Materials:
The light pole shall be Gateway or Median style poles per the project plans. The luminaires shall consist of Type III distribution and the wattage identified in the plans. The 1" conduit shall be schedule 40 PVC and include the conductors identified on the plans.

Construction Requirements:
The light pole shall be placed plumb and straight. The base of the pole shall be oriented so that the handhole is located away from the street. The PVC conduit feed from the adjacent pull box shall be installed in the pole foundation and shall extend two to four inches above the handhole. The pole foundation shall be in accordance with the requirements of the pole manufacturer. The Contractor shall ensure that the foundation bolt circle and anchor bolt size fit the pole base.

Method of Measurement:
The light pole will be measured as a complete unit for each pole furnished and installed including the pole, foundation, luminaire, lamp, excavation, backfill, anchor bolts, grounding wire, conductors, and any incidental materials necessary for a fully functioning street light.

Basis of Payment:
The accepted quantity for light poles, measured as provided above, will be paid for at the contract unit price for each pole type, which shall be full compensation for the work, complete in place as shown on the plans.

475.61400 ELECTRICAL SERVICE PEDESTAL SYSTEM

Description:
The Contractor shall furnish, install, and test a new electrical service pedestal system in the southwest corner of Warner Road and Higley Road, in accordance with Town of Gilbert Standard Details, the plans, and these special provisions.

Materials:
The Contractor is responsible for providing and installing a MYERS or TESCO meter pedestal.

The cabinet foundation shall be constructed in accordance with Town of Gilbert Standard Detail.

Construction Requirements:
The construction shall be in accordance with Town of Gilbert requirements. The Contractor shall coordinate with SRP for the traffic signal power connection and meter installation.

Method of Measurement:
Each new electrical service pedestal system will be measured as a unit each, furnished and installed; that includes but is not limited to, foundation, cabinet, tools, labor, and incidentals necessary to complete the work.

Basis of Payment:
The accepted quantity of electrical service pedestal system, measured as provided, will be paid for at the contract unit price, as designated on the schedule of bid items, complete in place.

475.62000 CONTROLLER CABINET ASSEMBLY

Description:
The Contractor shall install a new Town of Gilbert furnished controller cabinet in the southwest corner of Warner Road and Higley Road, in accordance with the Town of Gilbert Standard Details, the plans, and these special provisions.

Materials:
The Contractor is responsible for installing Town furnished cabinet in accordance with Town of Gilbert Standard Details.

Construction Requirements:
The construction shall be in accordance with Town of Gilbert requirements.

Method of Measurement:
Each controller cabinet assembly will be measured as a unit each, furnished and installed; that includes but is not limited to, foundation, cabinet, tools, labor, and incidentals necessary to complete the work.

Basis of Payment:
The accepted quantity of controller cabinet assembly, measured as provided, will be paid for at the contract unit price, as designated on the schedule of bid items, complete in place.

475.83011 PRE-EMPTION EQUIPMENT

Description:
The Contractor shall furnish, install, and test 4-Channel Strobecom II emergency vehicle pre-emption equipment manufactured by Tomar Corporation where indicated on the project plans.

Materials:
(A) Optical Detector Modules

The detectors shall be mounted as shown in the plans and shall be 4-channel per the Town's requirements.

(B) Phase Selector and System Chassis

A phase selector shall be installed and wired to provide a complete priority system as shown in the plans.

(C) Detector Cable

Provide new M913 detector cable for the preemption equipment.

Construction Requirements:
The emergency vehicle pre-emption equipment shall be field adjusted at the approximate mounting location in order to provide an unobstructed line-of-site view along the route of the approaching priority vehicle. The M913 cable shall run un-spliced from the detector on the mast arm to the phase selector in the cabinet. Construction shall be accordance with manufacturer's requirements.

Method of Measurement:
The emergency pre-emption system will be measured as a complete unit for installing each component and pulling a new M913 cable from the controller cabinet to each preemption unit.

Basis of Payment:
The accepted quantity of emergency vehicle preemption systems, measured as provided, will be paid for at the contract unit price, as designated on the schedule of bid items, complete in place.

476.61212 12" SIGNAL INDICATION, TYPE F SIGNAL FACE W/TYPE II PLUMBIZER MOUNTING ASSEMBLY
476.61213 12" SIGNAL INDICATION, TYPE F SIGNAL FACE W/TYPE V SIDE MOUNTING ASSEMBLY
476.61232 12" SIGNAL INDICATION, TYPE Q SIGNAL FACE W/TYPE IV SIDE MOUNTING ASSEMBLY
476.61233 12" SIGNAL INDICATION, TYPE Q SIGNAL FACE W/TYPE II PLUMBIZER MOUNTING ASSEMBLY
476.62015 PEDESTRIAN SIGNAL INDICATION W/TYPE V SIDE MOUNTING ASSEMBLY

Description:
This work shall consist of installing all Town furnished traffic signal faces and pedestrian signals on contractor furnished mounting assemblies as shown in the plans.

Materials:
Traffic signal mounting hardware shall conform to the ADOT Standard Drawings.

Construction Requirements:
All traffic signal construction shall be accomplished by a certified IMSA Level II Signal Technician. A uniformed off-duty Gilbert police officer shall be provided by the Contractor to control traffic during the change-over when the traffic signal is not in operation.

If a Town signal technician is needed after hours, the Contractor shall be responsible for the technician's overtime pay.

Equipment noted in the plans is shown schematically; the Engineer shall review and approve all equipment placement prior to construction.

Method of Measurement:
Traffic signal faces and mounts will be measured as a unit for each type of unit installed (including the necessary mounting assembly), that includes but is not limited to, tools, labor, and incidentals necessary to complete the work.

Basis of Payment:
The accepted quantities for signal faces and mounting assemblies measured as provided above, will be paid for at the contract unit price for each signal face and mounting assembly installed, which shall be full compensation for the work, complete in place as shown on the plans

477.82510 LED LUMINAIRES

Description:
The Contractor shall furnish and install new horizontal mount luminaries for traffic signals, where indicated in the plans.

Materials:
The new luminaries shall be OVF-6-LED-E-V-T3A-B2-4-OA/RA1013 Cooper fixtures with shorting caps.

Construction Requirements:
The luminaire shall be installed on the luminaire arm in accordance with the requirements of the Town of Gilbert Standard Details and the manufacturer.

Method of Measurement:
Work described herein and shown on the plans shall be measured as a unit each, furnished and installed; that includes but is not limited to, tools, labor, and incidentals necessary to complete the work

Basis of Payment:
The accepted quantities for LED Luminaries, measured as provided above, will be paid for at the contract unit price for each luminaire installed, which shall be full compensation for the work, complete in place as shown on the plans.

478.01001 ELECTRICAL CONDUCTORS (WARNER/HIGLEY SIGNAL)

Description:
The Contractor shall furnish and install traffic signal conductors, as indicated in the plans. Emergency Vehicle Pre-emption, Video Detection, CCTV Camera, Radio Interconnect, and Radar Advance Detection cables shall be included in those respective items.

Materials:

Traffic Signal Conductors
New traffic signal cables shall be IMSA 91-1, 14 AWG Standard Cable as indicated on the plans.

Individual conductors shall meet the requirements of the ADOT Standard Specifications and the plans.

Construction Requirements:
Conductors shall be installed per the manufacturer's instruction, and in accordance with the Town of Gilbert Requirements.

During pulling, the cable shall be lubricated at each pull box, in accordance with the manufacturer's requirements. The Contractor shall use a pre-lubrication or continuous lubrication method.

Method of Measurement:
Electrical Conductors (Warner/Higley Signal) shall be measured on a lump sum basis.

Basis of Payment:
Electrical Conductors (Warner/Higley Signal), measured as provided above, will be paid for at the contract lump sum price, which price shall be full compensation for the work related to wiring as specified in the plans and for ancillary cabinet items, such as additional load switches, flashers, etc., complete in place, to provide a complete, functioning cabinet assembly for control of the traffic signals as shown on the plans.

481.00058 PULLBOX (NO. 9 VAULT)

Description:
The Contractor shall furnish and install a No.9 vault as shown in the Project Plans. The Contractor shall furnish and install racks and hooks in all new vaults.

Materials:
The vaults shall meet all the requirements as noted in Town of Gilbert Standard Detail 102. A certificate of compliance, in accordance with Section 106.05 of the ADOT Standard Specifications shall be supplied for structural capabilities and materials used in manufacture.

Construction Requirements:
The construction shall be in accordance with Town of Gilbert Standard Details. Each new vault location shall be field confirmed by the Engineer.

Each new pull box shall be installed to the finished grade.

The Contractor shall be responsible for restoring the surrounding surface conditions back to their original state, including concreted areas.

Method of Measurement
New vaults will be measured as a unit for each vault.

Basis of Payment
The accepted quantities of each vault, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place,

including racks, hooks, and any excavating, backfilling, and area restoration necessary to complete the work.

483.00010 CCTV CAMERA

Description:
The Contractor shall furnish, install, and test the Closed Circuit TeleVision (CCTV) camera system as shown in the Project Plans and per Town of Gilbert Standard Specifications.

Materials:
The Contractor shall provide the CCTV camera system, including system hardware, software, cabling, and integration per Town of Gilbert Standard Detail GIL-106 and the Standard Specifications.

Construction Requirements:
The Contractor shall install the CCTV camera system, provide the cable from the camera to the controller with no splices in the wire, and all equipment necessary for installing the video detection system as identified in the following specification:

The CCTV camera shall be mounted on the signal pole, on a pole mounted adaptor, with the construction being in accordance with the manufacture's requirements.

Prior to activation of the signal, the CCTV camera system shall be fully functional and operating in accordance with the specifications identified above.

Method of Measurement:
CCTV camera system will be measured as a unit for each system reinstalled.

Basis of Payment:
The accepted quantities of the CCTV camera system, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place, including testing and calibration, necessary to complete the work.

485.20000 VIDEO DETECTION SYSTEM

Description:
The Contractor shall furnish, install, and test the video detection systems as shown in the Project Plans and per Town of Gilbert Standard Specifications.

Materials:
The Contractor shall provide the video detection system, including system hardware, software, cabling, and integration per Town of Gilbert Standard Detail GIL-113 and the Standard Specifications.

Construction Requirements:
The Contractor shall install the video detection system, provide the cable from the cameras to the controller with no splices in the wire, and all equipment necessary for installing the video detection system as identified in the following specification:

The video cameras shall be mounted on the signal mast arm, on a 6 foot extension bracket, with the construction being in accordance with the manufacture's requirements.

Prior to activation of the signal, the video detection system shall be fully functional and operating in accordance with the specifications identified above.

Method of Measurement:
Video detection system will be measured as a unit for each system reinstalled.

Basis of Payment:
The accepted quantities of the video detection system, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place, including testing and calibration, necessary to complete the work.

485.20001 RADAR ADVANCE DETECTION SYSTEM

Description:
The Contractor shall furnish, install, and test the radar advance detection systems as shown in the Project Plans and per Town of Gilbert Standard Specifications.

Materials:
The Contractor shall provide the radar advance detection system, including system hardware, software, cabling, and integration per Town of Gilbert Standard Details and the Standard Specifications.

Construction Requirements:
The Contractor shall install the radar advance detection system, provide the cable from the radar detection units to the controller with no splices in the wire, and all equipment necessary for installing the radar detection system as identified in the following specification:

The radar detection units shall be mounted on the signal mast arm, with the construction being in accordance with the manufacture's requirements.

Prior to activation of the signal, the radar advance detection system shall be fully functional and operating in accordance with the specifications identified above.

Method of Measurement:
Radar advance detection system will be measured as a unit for each system reinstalled.

Basis of Payment:
The accepted quantities of the radar advance detection system, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place, including testing and calibration, necessary to complete the work.

485.82000 SPREAD SPECTRUM RADIO SYSTEM

Description:
The Contractor shall furnish, install, and test the spread spectrum radio systems as shown in the Project Plans and per Town of Gilbert Standard Specifications.

Materials:
The Contractor shall provide the spread spectrum radio system, including system hardware, software, cabling, and integration per Town of Gilbert Standard Detail GIL-107, the Standard Specifications, and the project plans.

Construction Requirements:
The Contractor shall install the spread spectrum radio system, provide the cable from the spread spectrum radio unit to the controller with no splices in the wire, and all equipment necessary for installing the spread spectrum radio system as identified in the following specification:

The spread spectrum radio unit shall be mounted on the signal mast arm, with the construction being in accordance with the manufacture's requirements.

Prior to activation of the signal, the spread spectrum radio system shall be fully functional and operating in accordance with the specifications identified above.

Method of Measurement:
Spread spectrum radio system will be measured as a unit for each system reinstalled.

Basis of Payment:
The accepted quantities of the spread spectrum radio system, measured as provided above, will be paid for at the contract unit price each, which price shall be full compensation for the work, complete in place, including testing and calibration, necessary to complete the work.

APPENDIX A

UTILITY POTHOLING REPORT

KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 1 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 1

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	78+80	31.0	LT
Station/Offset/Dir: *Surveyed*	78+80.26	31.3	LT

Survey Remarks:
BOTTOM ELEVATION: 1283.73 N:847801.13 / E:759766.77

Profile View (not to scale)

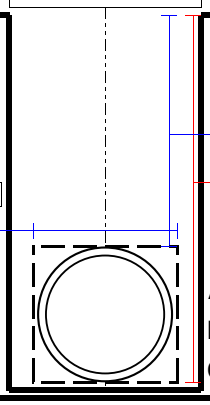
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.73 (feet)

Upper: OR
Lower: SL 3.80 (feet)
Soils Code: CH

Visual Utility Identification Information

Size/Width: 30.00 (in)
Type Code: E
Structure: D
Material: CC



Utility Elevation TOP: 1286.73 (feet)

Measured Distance From Surface:
TOP: 4.00 (feet)
BOTTOM: 7.00 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	7.00	W	EDGE OF PAVEMENT
B:	7.00	E	EAST EDGE OF SLIP FORM
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

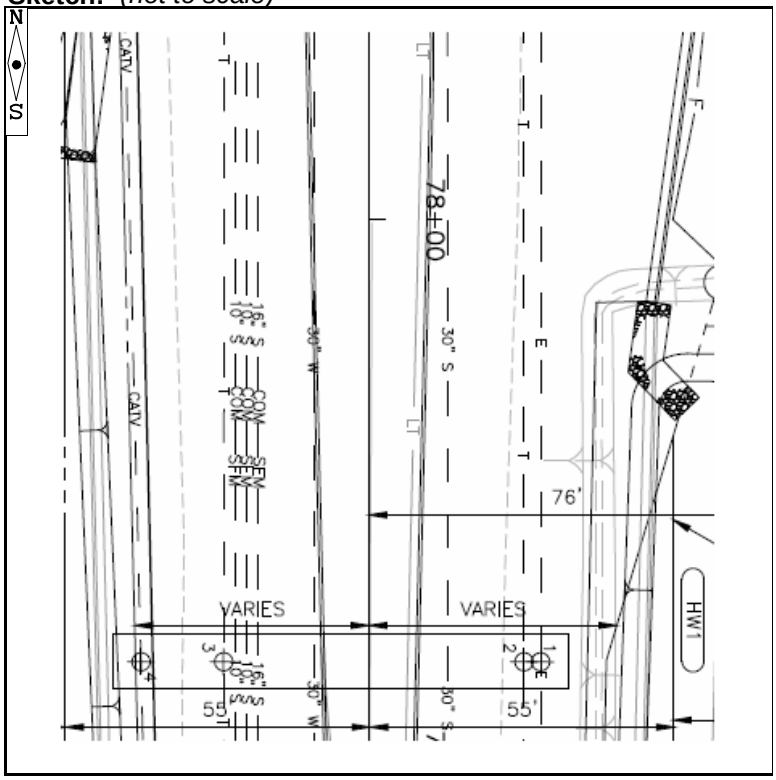
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We excavated through 4 ' of slurry then encountered concrete encasement running N/S.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 2 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 2

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	78+80	28.0	LT
Station/Offset/Dir: *Surveyed*	78+80.12	28.2	LT

Survey Remarks:
BOTTOM ELEVATION: 1287.44 N:847801.01 / E:759769.91

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.94 (feet)

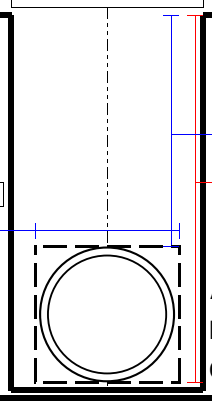
Upper: OR (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1288.11 (feet)

Measured Distance From Surface:
TOP: 2.83 (feet)
BOTTOM: 3.50 (feet)

Visual Utility Identification Information

Size/Width: 8.00 (in)
Type Code: TEL
Structure: D
Material: PE



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	4.00	W	EDGE OF PAVEMENT
B:	10.20	E	E EDGE OF SLIP FORM
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

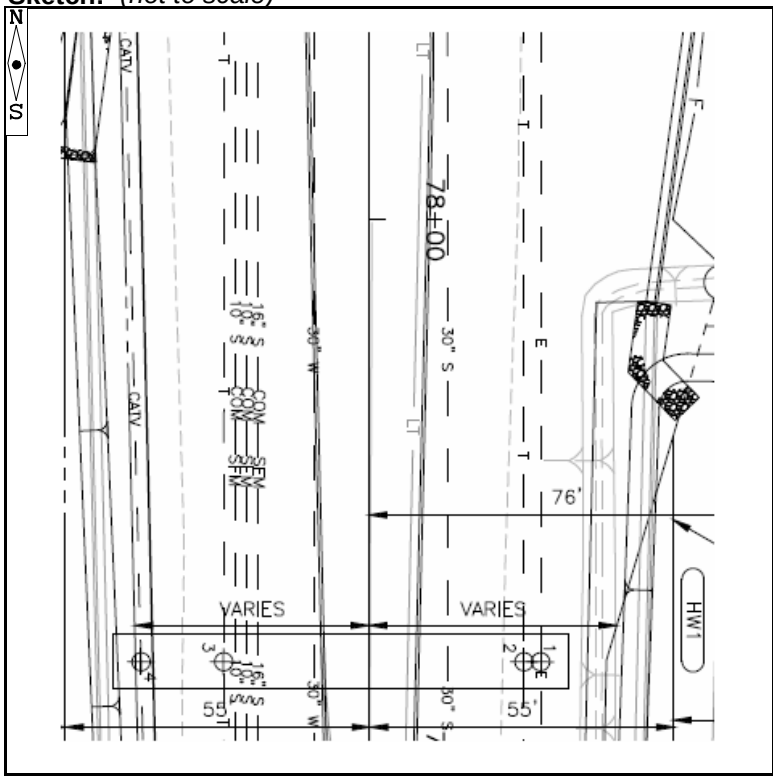
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located 2 - 2" black striped pipes running N/S.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/19/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus and Bill

Client Hole#: 3 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 3

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	78+80	26.0	RT
Station/Offset/Dir: *Surveyed*	78+79.49	24.1	RT

Survey Remarks:
BOTTOM ELEVATION: 1287.09 N:847800.79 / E:759822.21

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.36 (feet)

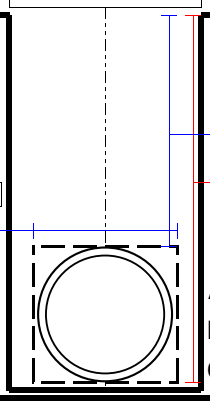
Upper: AC 0.10 (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1287.46 (feet)

Measured Distance From Surface:
TOP: 3.90 (feet)
BOTTOM: 408.00 (feet)

Visual Utility Identification Information

Size/Width: 4.50 (in)
Type Code: TEL
Structure: P
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	4.80	E	EDGE OF PAVEMENT
B:			
C:	148.50	NE	SANITARY SEWER MANHOLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

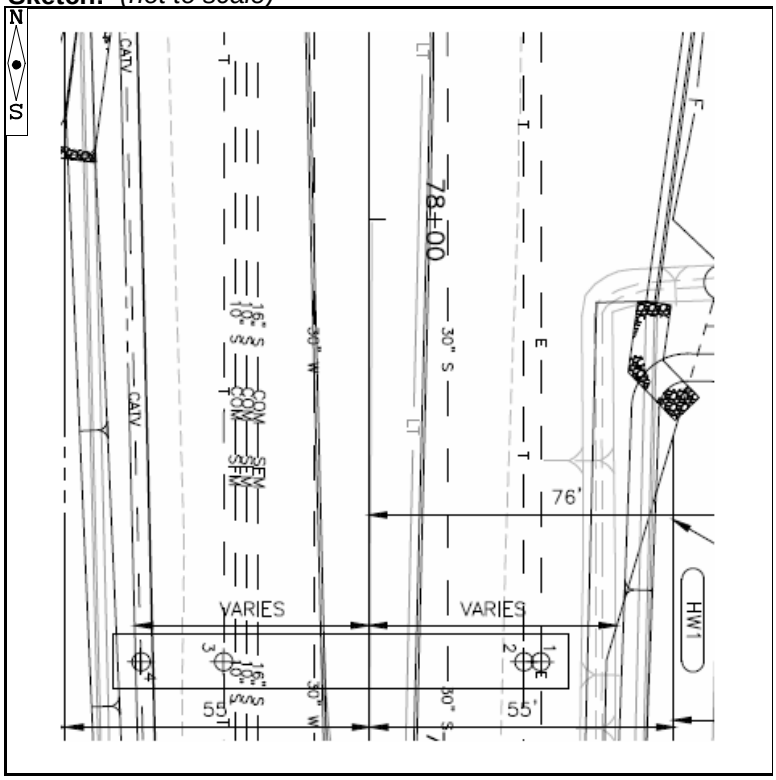
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a white pipe running N/S.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/19/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 4 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 4

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 78+80 | 41.0 | RT
Station/Offset/Dir: *Surveyed*

Survey Remarks:

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: SEE COMMEN **Marker/Surf. Elevation:** (feet)

Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: (feet)
Measured Distance From Surface:
TOP: (feet)
BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: (in)
Type Code: TV
Structure: O
Material:

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	60.50	E	EDGE OF PAVEMENT
B:			
C:	151.70	NE	SANITARY SEWER MANHOLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

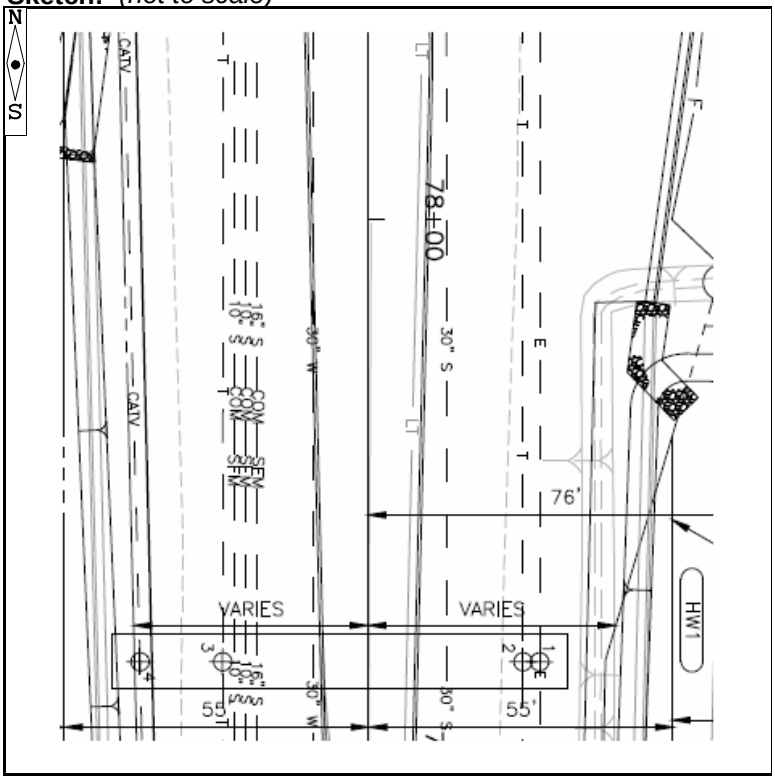
Comments/Remarks:

We excavated through very hard soil to 11' deep.

Note: No TV found

10/21/13 - Went 11ft deep again to the East of first location. Not Found!

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 5 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 5

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	81+02	31.0	LT
Station/Offset/Dir: *Surveyed*	81+02.27	31.3	LT

Survey Remarks:
BOTTOM ELEVATION: 1284.36 N:848023.14 / E:759765.07

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.61 (feet)

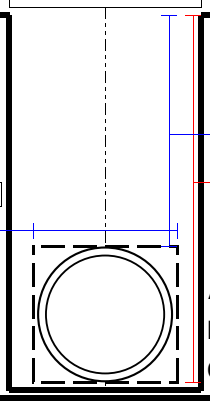
Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1287.36 (feet)

Measured Distance From Surface:
TOP: 3.25 (feet)
BOTTOM: 6.25 (feet)

Visual Utility Identification Information

Size/Width: 30.00 (in)
Type Code: E
Structure: D
Material: CC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	10.60	W	EDGE OF PAVEMENT
B:	7.40	E	E EDGE OF SLIP FORM
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

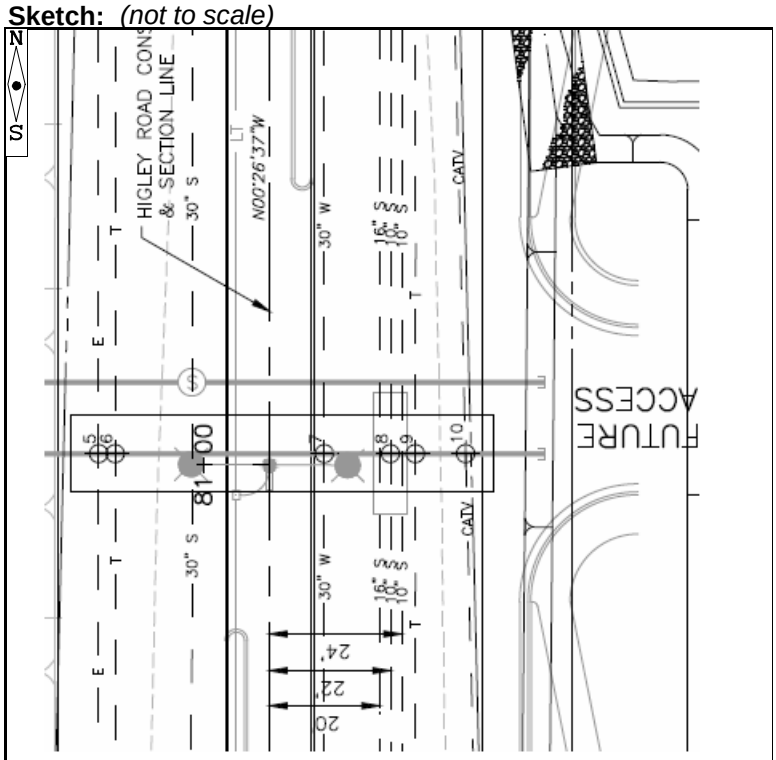
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We excavated through 3.2 ' of slurry then encountered concrete.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 6 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 6

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	81+02	28.0	LT
Station/Offset/Dir: *Surveyed*	81+02.07	26.7	LT

Survey Remarks:
BOTTOM ELEVATION: 1287.45 N:848022.97 / E:759769.65

Profile View (not to scale)

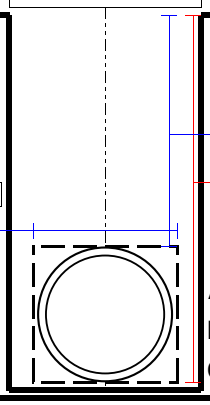
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.87 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Visual Utility Identification Information

Size/Width: 8.00 (in)
Type Code: TEL
Structure: D
Material: PE



Utility Elevation TOP: 1288.12 (feet)

Measured Distance From Surface:
TOP: 2.75 (feet)
BOTTOM: 3.42 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	6.00	W	EDGE OF PAVEMENT
B:	12.00	E	E EDGE OF SLIP FORM
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

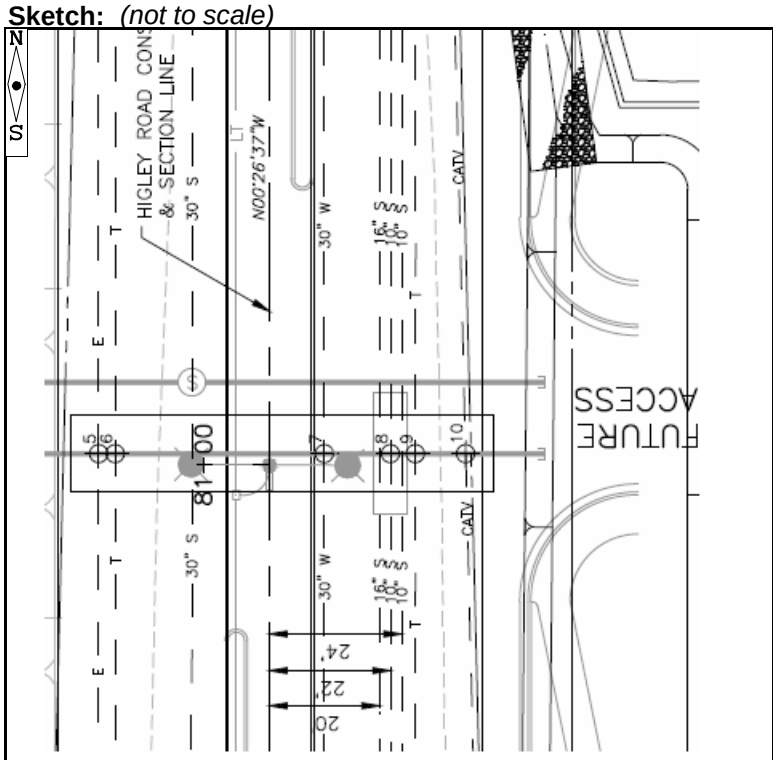
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located 2 - 2" black pipes with stripes running N/S.

Note: FO CLN

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: N. of 202 on Higley

Truck: 21 **Crew Names:** Jen, Bill & Jesus

Client Hole#: 7 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 7

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	81+02	10.0	RT
Station/Offset/Dir: *Surveyed*	81+01.80	10.4	RT

Survey Remarks:
BOTTOM ELEVATION: 1281.48 N:848022.98 / E:759806.77

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.65 (feet)

Upper: AC 0.65 (feet)

Lower:

Soils Code: GW

Utility Elevation TOP: 1284.73 (feet)

Measured Distance From Surface:

TOP: 6.92 (feet)

BOTTOM: 10.16 (feet)

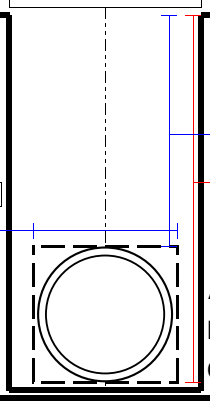
Visual Utility Identification Information

Size/Width: 39.00 (in)

Type Code: W

Structure: P

Material: RC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	20.00	W	EDGE OF PAVEMENT
B:	21.10	E	EDGE OF PAVEMENT
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
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WD - Wood

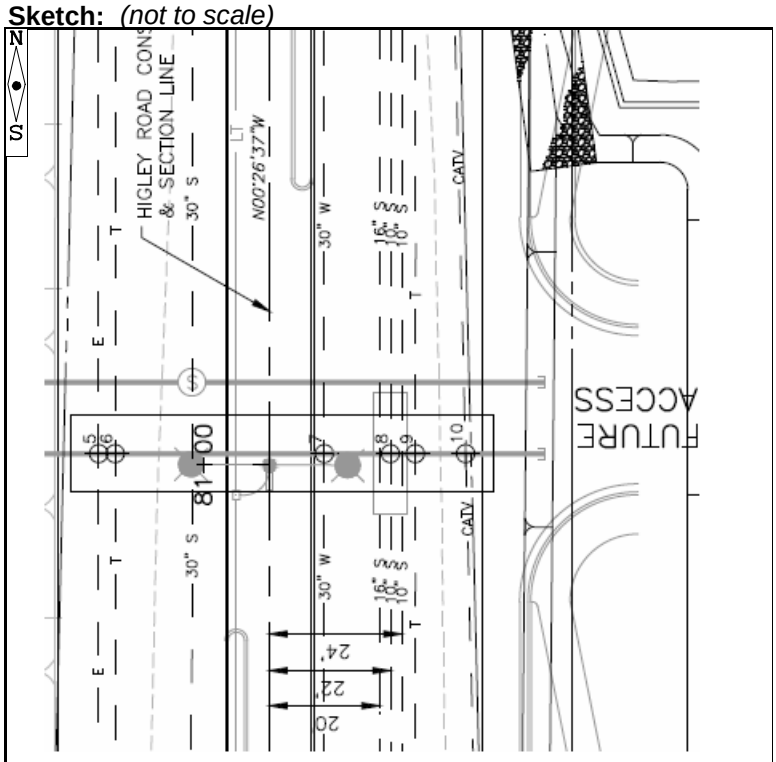
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:
We located a pipe running N/S.

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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 8 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 8

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	81+02	22.0	RT
Station/Offset/Dir: *Surveyed*	81+01.58	16.3	RT

Survey Remarks:
BOTTOM ELEVATION: 1282.17 N:848022.81 / E:759812.71

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.53 (feet)

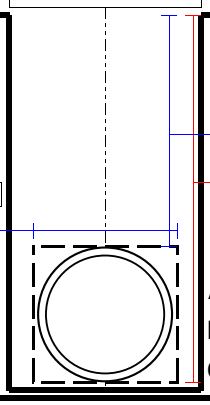
Upper: AC 0.80 (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1283.13 (feet)

Measured Distance From Surface:
TOP: 8.40 (feet)
BOTTOM: 9.36 (feet)

Visual Utility Identification Information

Size/Width: 11.50 (in)
Type Code: FM
Structure: P
Material: STL



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	165.90	SW	DOWN GUY
B:	27.10	E	EDGE OF PAVEMENT
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

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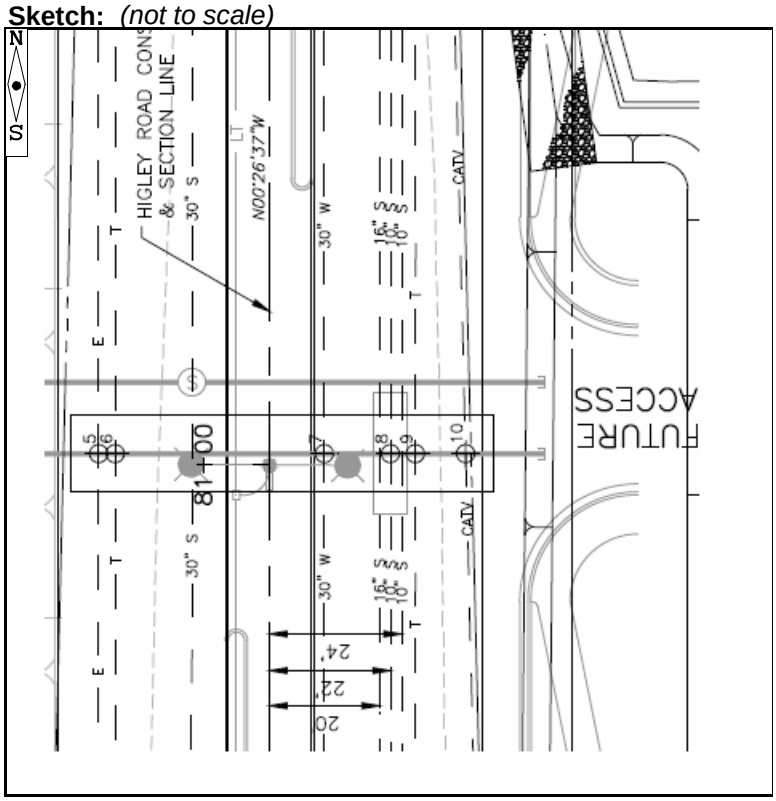
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running N/S furthest West.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 9 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 9

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 81+02 | 27.0 | RT
Station/Offset/Dir: *Surveyed* 81+01.69 | 24.3 | RT

Survey Remarks:
BOTTOM ELEVATION: 1287.04 N:848022.98 / E:759820.64

Profile View (not to scale)

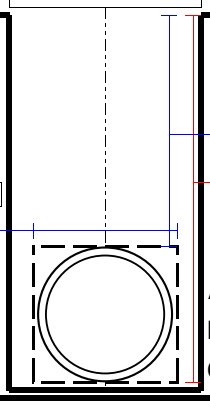
Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.26 (feet)

Upper: AC 0.15 (feet)
Lower:
Soils Code: GM

Visual Utility Identification Information

Size/Width: 4.50 (in)
Type Code: TEL
Structure: P
Material: PVC



Utility Elevation TOP: 1287.41 (feet)

Measured Distance From Surface:
TOP: 3.85 (feet)
BOTTOM: 4.23 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	165.30	SW	DOWN GUY
B:	34.90	E	EDGE OF PAVEMENT
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
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TEL - Telephone
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GIP - Galvanized Iron
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M/H - ManHole
P/P - Power Pole
S/W - Side Walk
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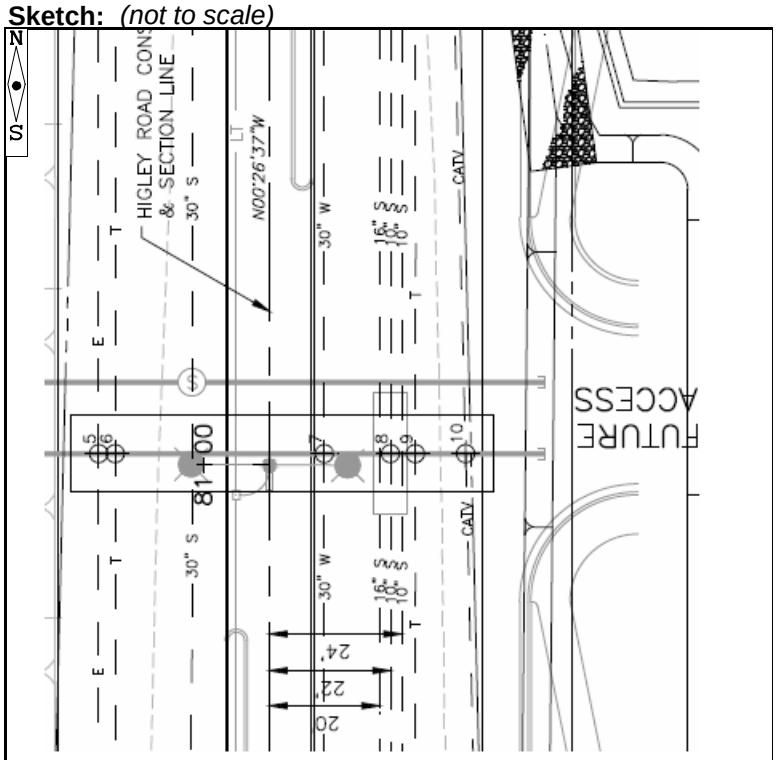
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a white pipe running N/S.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of 202 on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 10 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 10

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 81+02 | 36.0 | RT
Station/Offset/Dir: *Surveyed* 81+01.30 | 38.9 | RT

Survey Remarks:
BOTTOM ELEVATION: 1283.76 N:848022.70 / E:759835.23

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1289.45 (feet)

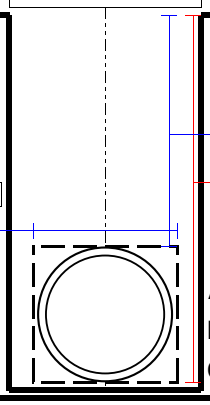
Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1284.43 (feet)

Measured Distance From Surface:
TOP: 5.02 (feet)
BOTTOM: 5.69 (feet)

Visual Utility Identification Information

Size/Width: 8.00 (in)
Type Code: TV
Structure: D
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	166.00	S	DOWN GUY
B:	49.70	E	EDGE OF PAVEMENT
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

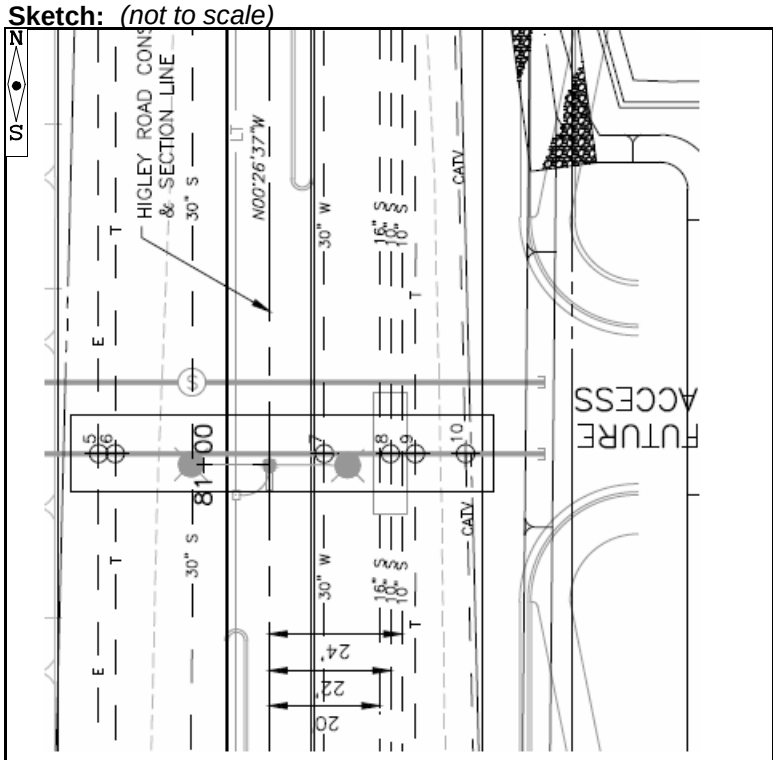
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:
We located gray pipes running N/S,

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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: S. of Stottler on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 11 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 11

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	86+90	31.0	LT
Station/Offset/Dir: *Surveyed*	86+90.17	27.7	LT

Survey Remarks:
BOTTOM ELEVATION: 1284.61 N:848611.05 / E:759764.06

Profile View (not to scale)

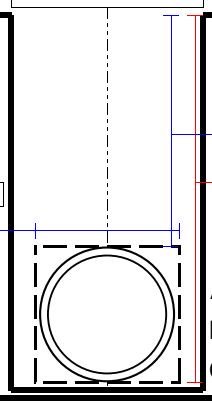
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.24 (feet)

Upper: OR (feet)
Lower:
Soils Code: CH

Visual Utility Identification Information

Size/Width: 4.00 (in)
Type Code: E
Structure: P
Material: PVC



Utility Elevation TOP: 1284.94 (feet)

Measured Distance From Surface:
TOP: 5.30 (feet)
BOTTOM: 5.64 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	7.80	W	EDGE OF PAVEMENT
B:	12.10	E	E EDGE OF SLIP FORM
C:	36.00	N	POWER POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

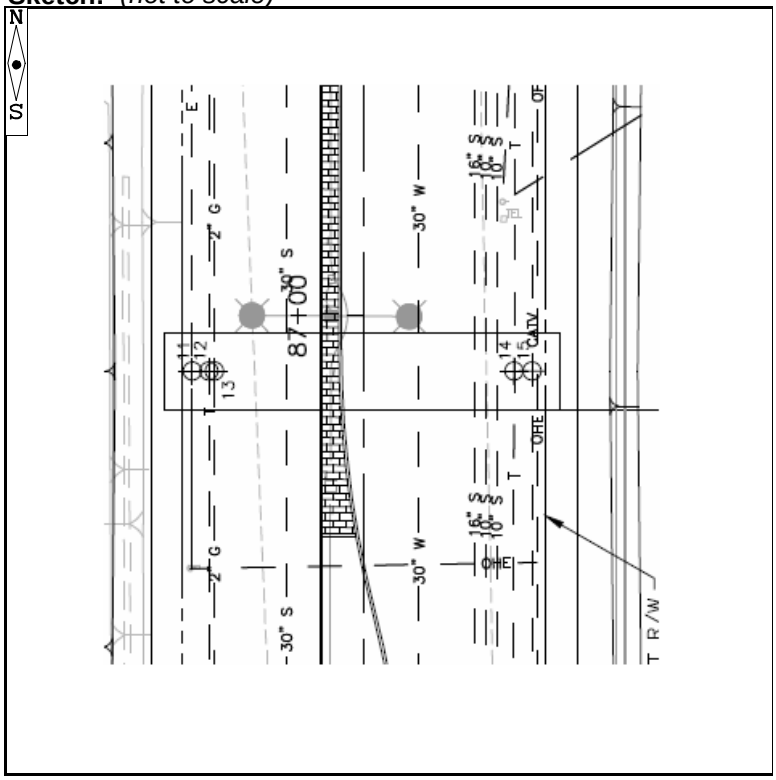
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a red pipe running N/S.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: S. of Stottler on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 12 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 12

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	86+90	28.0	LT
Station/Offset/Dir: *Surveyed*	86+90.20	26.8	LT

Survey Remarks:
BOTTOM ELEVATION: 1286.74 N:848611.08 / E:759764.98

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.28 (feet)

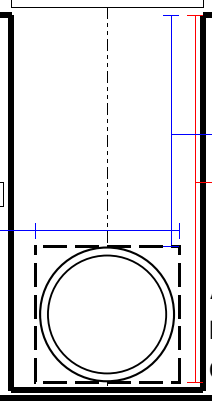
Upper: OR (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1287.41 (feet)

Measured Distance From Surface:
TOP: 2.87 (feet)
BOTTOM: 3.54 (feet)

Visual Utility Identification Information

Size/Width: 8.00 (in)
Type Code: TEL
Structure: D
Material: PE



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	4.50	W	EDGE OF PAVEMENT
B:	15.40	E	E EDGE OF SLIP FORM
C:	36.40	NE	POWER POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

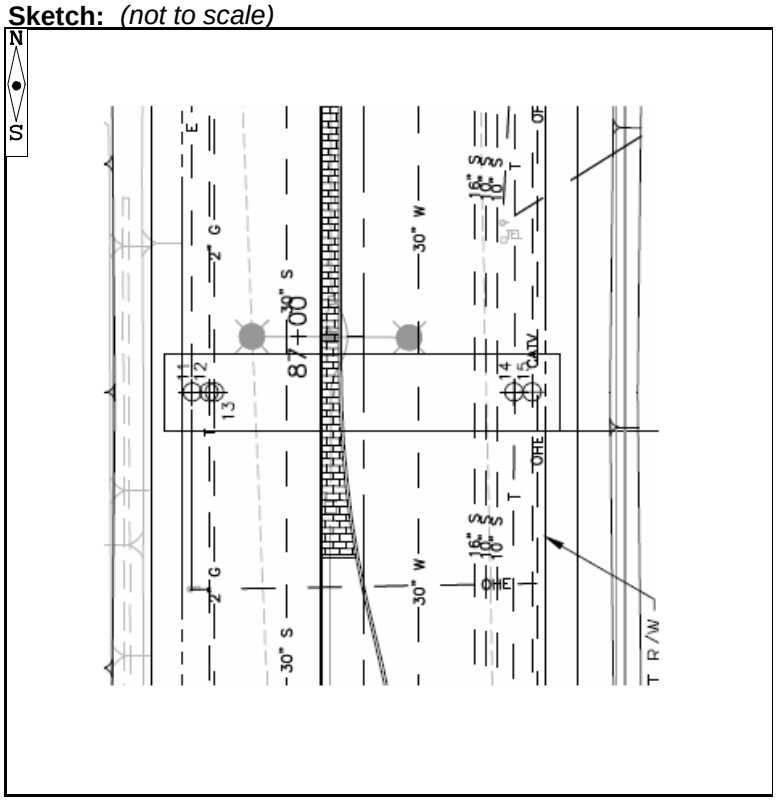
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located 2 -2" PE black striped pipes running N/S.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: S. of Stottler on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 13 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 13

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 86+90 | 27.0 | LT
Station/Offset/Dir: *Surveyed* 86+90.16 | 24.4 | LT

Survey Remarks:
BOTTOM ELEVATION: 1284.07 N:848611.06 / E:759767.44

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.40 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1284.28 (feet)

Measured Distance From Surface:
TOP: 6.12 (feet)
BOTTOM: 6.33 (feet)

Visual Utility Identification Information
Size/Width: 2.50 (in)
Type Code: G
Structure: P
Material: STL

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	6.90	W	EDGE OF PAVEMENT
B:	13.00	E	E EDGE OF SLIP FORM
C:	36.00	NE	POWER POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

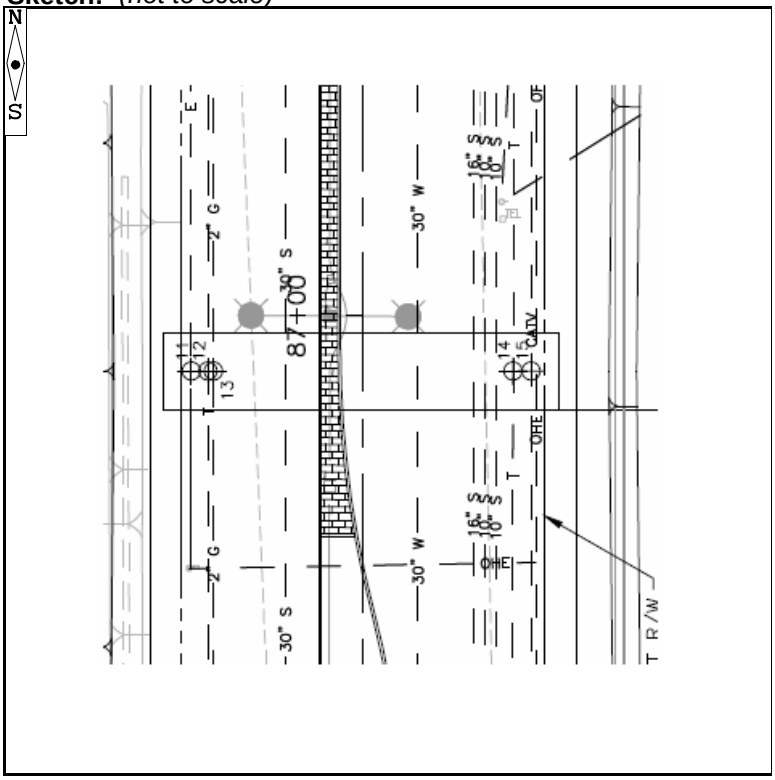
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located an orange pipe running N/S.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/19/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: S. of Stottler on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 14 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 14

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	86+90	27.0	RT
Station/Offset/Dir: *Surveyed*	86+90.98	21.9	RT

Survey Remarks:
BOTTOM ELEVATION: 1286.57 N:848612.23 / E:759813.74

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.60 (feet)

Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1286.95 (feet)

Measured Distance From Surface:
TOP: 3.65 (feet)
BOTTOM: 4.03 (feet)

Visual Utility Identification Information

Size/Width: 4.50 (in)
Type Code: TEL
Structure: P
Material: PVC

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	29.60	SE	TELEPHONE PEDESTAL
B:	120.50	NE	POWER POLE
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

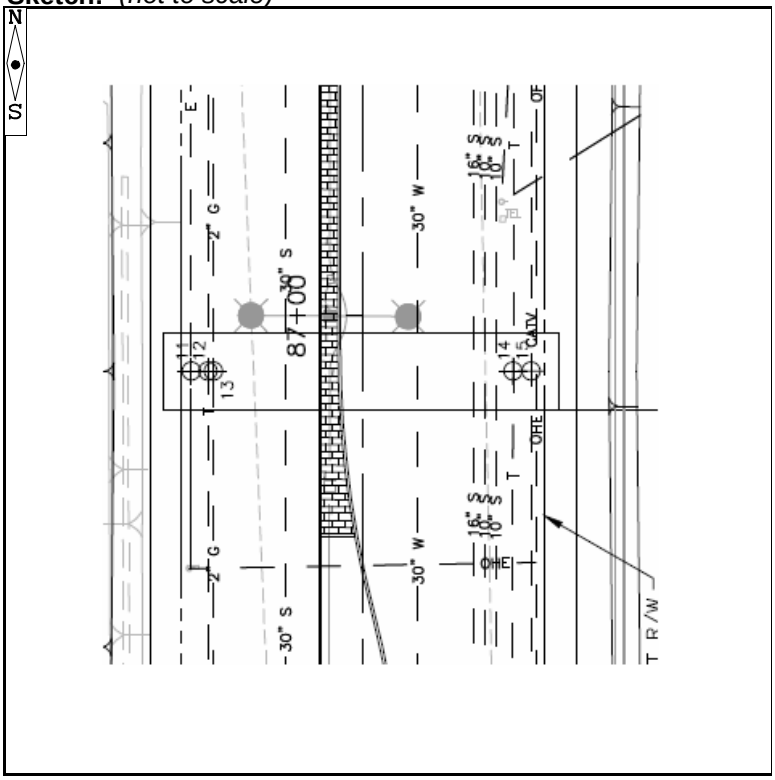
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a white pipe running N/S.

Note: We also located a black cable running N/S at 5.25ft deep 37.5ft Rt

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/19/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: S. of Stottler & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 15 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 15

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	86+90	31.0	RT
Station/Offset/Dir: *Surveyed*	86+89.62	29.0	RT

Survey Remarks:
BOTTOM ELEVATION: 1281.12 N:848610.94 / E:759820.86

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.24 (feet)

Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1281.79 (feet)

Measured Distance From Surface:
TOP: 8.45 (feet)
BOTTOM: 9.12 (feet)

Visual Utility Identification Information

Size/Width: 8.00 (in)
Type Code: TV
Structure: D
Material: PVC

Physical SWING TIE Information

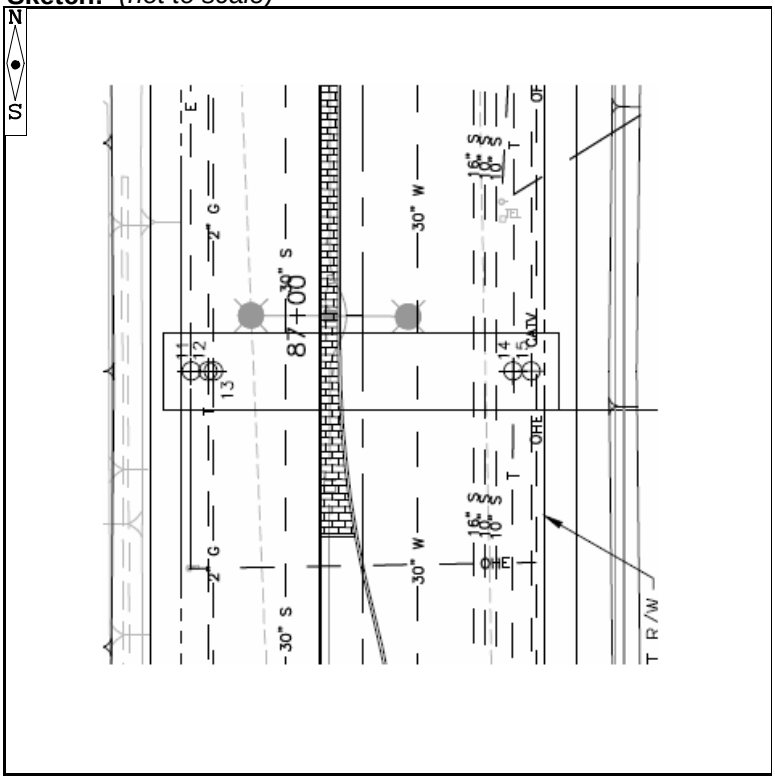
	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	27.80		TELEPHONE PEDESTAL
B:	120.80	NW	POWER POLE
C:			

TERMS:

UKN - Unknown	ABS - Plastic Pipe	C - Cable
AC - Asphalt/Concrete	ACP - Asbes. Cement	D - Duct bank
AB - Aggregate Base	CIP - Cast Iron Pipe	P - Pipe
CC - Cement/Concrete	CIPP- Cast in Place	V - Vault Box
OR - Off Road (Dirt)	CAP - Corrugated Alum	
	GIP - Galvanized Iron	B/C - Back of Curb
E - Electrical	GSP - Galvanized Steel	CB - Catch Basin
G - Gas/Petro/LP	PE - Poly Ethylene	CLF - Chain Link Fence
IR - Irrigation	PVC - PolyVinal Chlor .	CMU - Conc. Mason
TV - Cable TV	RC - Reinforced Conc.	Wall
FO - Fiber Optics	SL - Slurry	E/P - Edge of Pavement
SD - Storm Drain	STL - Steel	F/C - Face of Curb
SS - Sanitary Sewer	STLC- Steel Coated	F/H - Fire Hydrant
TEL - Telephone	STLW- Steel Wrapped	IN - Inspection Hole
TS - Traffic Signal	TR - Transite	M/H - ManHole
W - Water	VCP - Vitrified Clay Pipe	P/P - Power Pole
CH - Chemical	WD - Wood	S/W - Side Walk
		WM - Water Meter
		WV - Water Valve
BM - Benchmark	BCHH- Brass Cap	_ . _CL - Center Line
BCF - Brass Cap Flush	HandHole	_ . . _PL - Property Line
		R/W - Right of Way
		_ . . . _BaseLine

Comments/Remarks:
We located gray pipes running N/S.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Stottler & Higley
Truck: 21 **Crew Names:** Ken, Jesus and Bill

Client Hole#: 16 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 16

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	88+35	49.0	LT
Station/Offset/Dir: *Surveyed*	88+35.40	49.4	LT

Survey Remarks:
BOTTOM ELEVATION: 1284.37 N:848756.10 / E:759741.29

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1289.69 (feet)

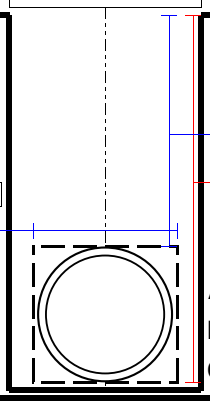
Upper: AC 40.00 (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1285.45 (feet)

Measured Distance From Surface:
TOP: 4.23 (feet)
BOTTOM: 5.31 (feet)

Visual Utility Identification Information

Size/Width: 13.00 (in)
Type Code: W
Structure: P
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	41.30	SW	SANITARY SEWER MAN HOLE
B:	10.10	SE	WATER VALVE
C:	21.90	NE	TELEPHONE PEDESTAL

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

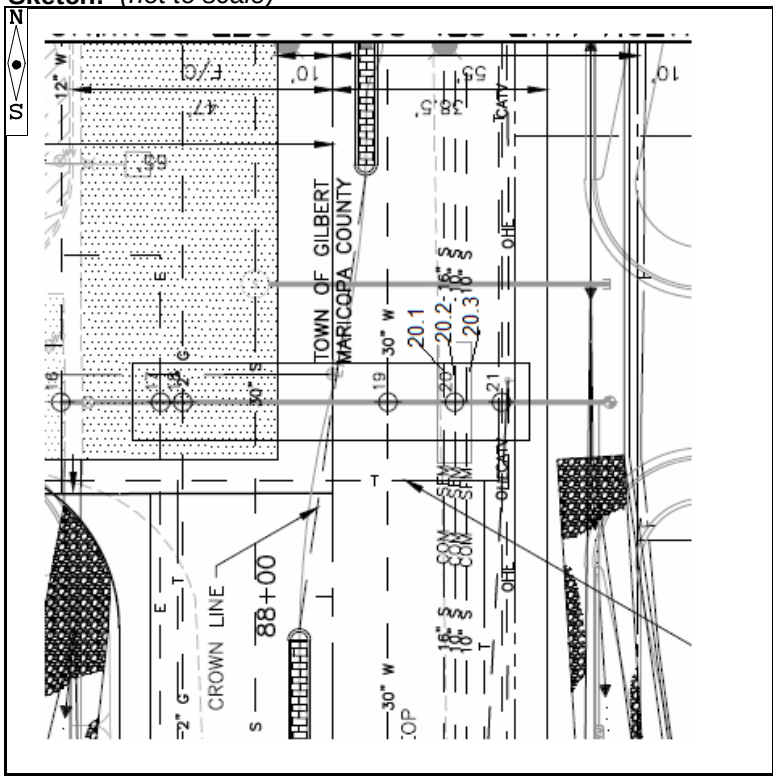
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a white pipe running N/S.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Stottler & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 17 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 17

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	88+35	31.0	LT
Station/Offset/Dir: *Surveyed*	88+35.00	28.2	LT

Survey Remarks:
BOTTOM ELEVATION: 1284.86 N:848755.87 / E:759762.44

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1290.14 (feet)

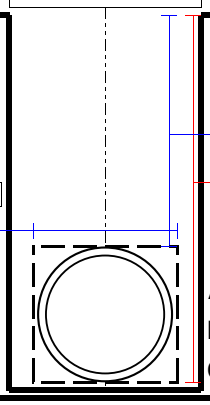
Upper: AB 0.45 (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1285.19 (feet)

Measured Distance From Surface:
TOP: 4.95 (feet)
BOTTOM: 5.29 (feet)

Visual Utility Identification Information

Size/Width: 4.00 (in)
Type Code: E
Structure: P
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	25.80	SW	SANITARY SEWER MAN HOLE
B:	25.10	S	WATER VALVE
C:	38.80	NE	TELEPHONE PEDESTAL

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

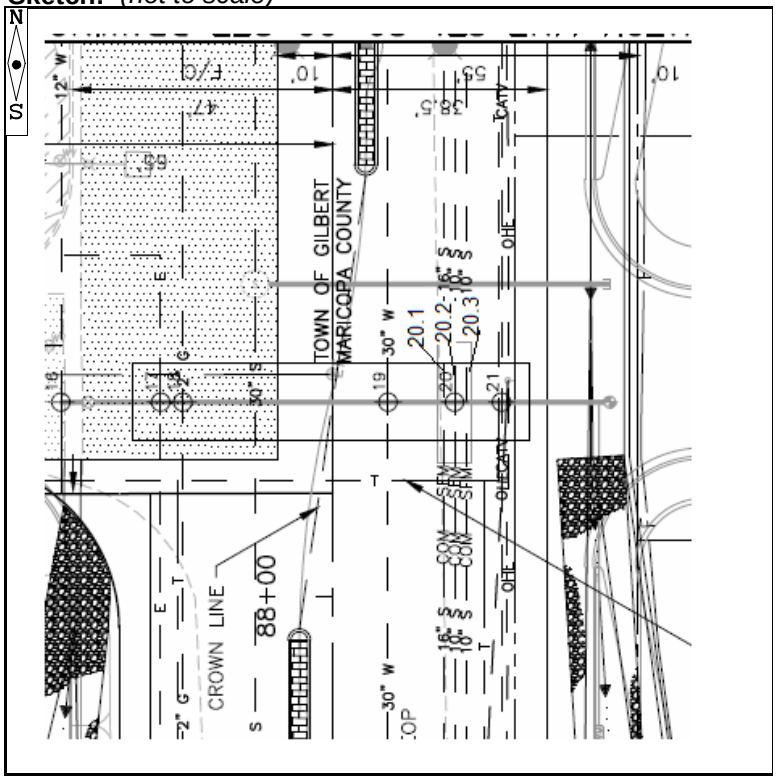
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a red pipe running N/S.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/18/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Stottler & Higley

Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 18 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 18

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	88+35	27.0	LT
Station/Offset/Dir: *Surveyed*	88+35.13	26.8	LT

Survey Remarks:
BOTTOM ELEVATION: 1283.78 N:848756.01 / E:759763.91

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1290.19 (feet)

Upper: AB 0.45 (feet)

Lower:

Soils Code: GW

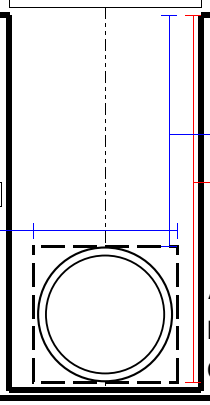
Visual Utility Identification Information

Size/Width: 2.50 (in)

Type Code: G

Structure: P

Material: STL



Utility Elevation TOP: 1283.99 (feet)

Measured Distance From Surface:

TOP: 6.20 (feet)

BOTTOM: 6.41 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	24.90	SW	SANITARY SEWER MAN HOLE
B:	26.40	SE	WATER VALVE
C:	40.10	NE	TELEPHONE PEDESTAL

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

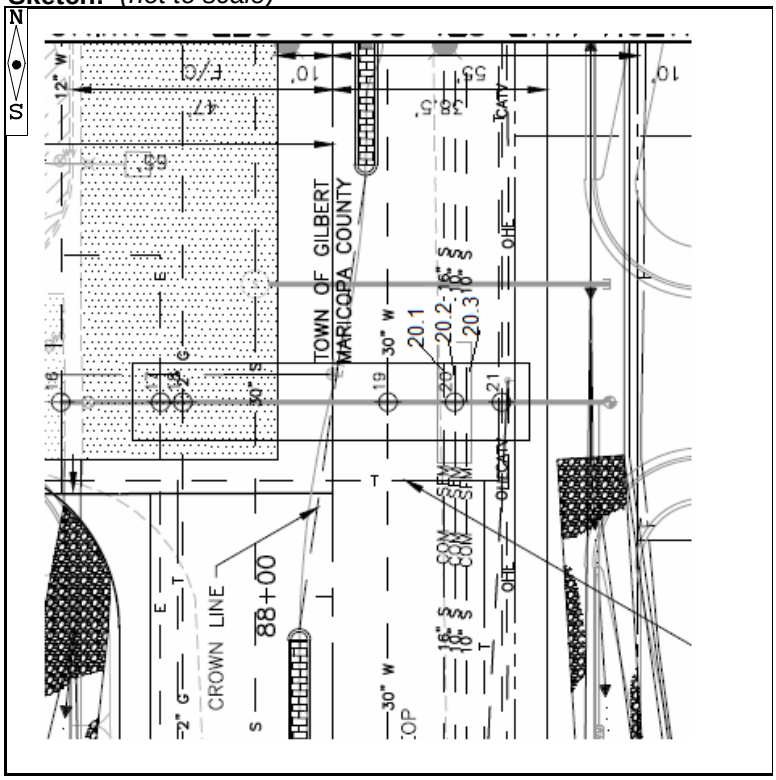
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running N/S,

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/19/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Stottler & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 19 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 19

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	88+35	10.0	RT
Station/Offset/Dir: *Surveyed*	88+34.79	10.4	RT

Survey Remarks:
BOTTOM ELEVATION: 1281.05 N:848755.95 / E:759801.05

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1290.50 (feet)

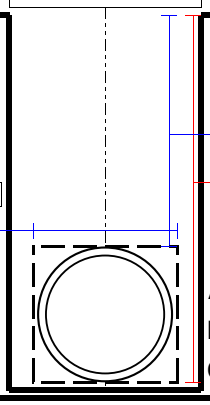
Upper: AC 0.25 (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1284.30 (feet)

Measured Distance From Surface:
TOP: 6.20 (feet)
BOTTOM: 9.44 (feet)

Visual Utility Identification Information

Size/Width: 39.00 (in)
Type Code: W
Structure: P
Material: RC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	114.80	NW	WOOD POWER POLE
B:	32.60	SE	SANITARY SEWER MAN HOLE
C:	21.40	W	WOOD POWER POLE WSW

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

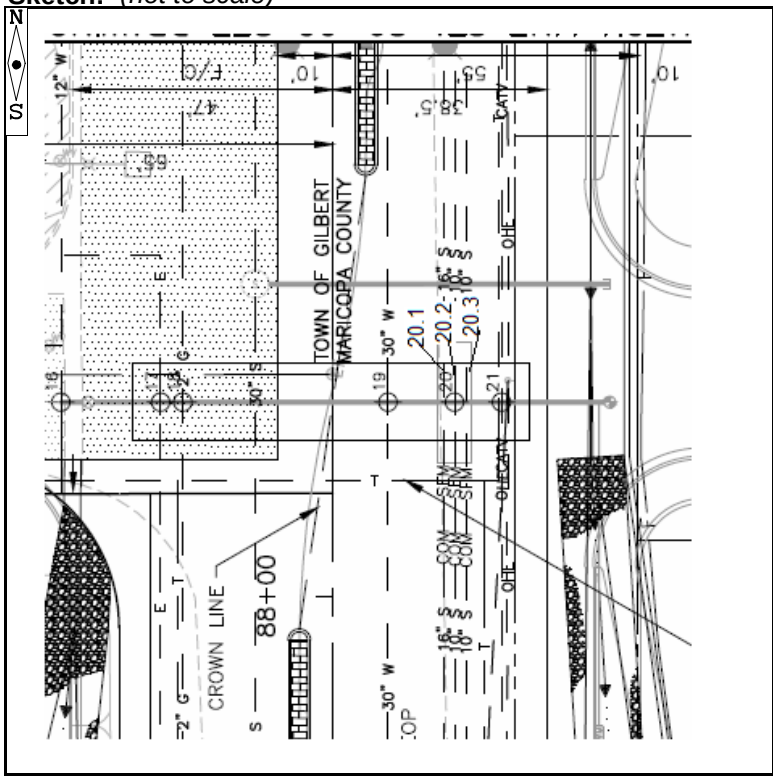
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running N/S.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/19/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Stottler & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 20.2 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 20 2

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)			
Station/Offset/Dir: *Surveyed*	88+34.74	19.8	RT

Survey Remarks:
BOTTOM ELEVATION: 1282.49 N:848755.98 / E:759810.49

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1290.22 (feet)

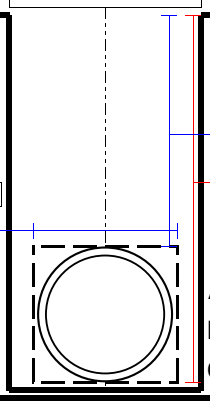
Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1283.32 (feet)

Measured Distance From Surface:
TOP: 6.90 (feet)
BOTTOM: 7.73 (feet)

Visual Utility Identification Information

Size/Width: 10.00 (in)
Type Code: FM
Structure: P
Material: STL



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	113.80	NW	WOOD POWER POLE
B:	40.20	SE	SANITARY SEWER MAN HOLE
C:	12.30	NW	WOOD POWER POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

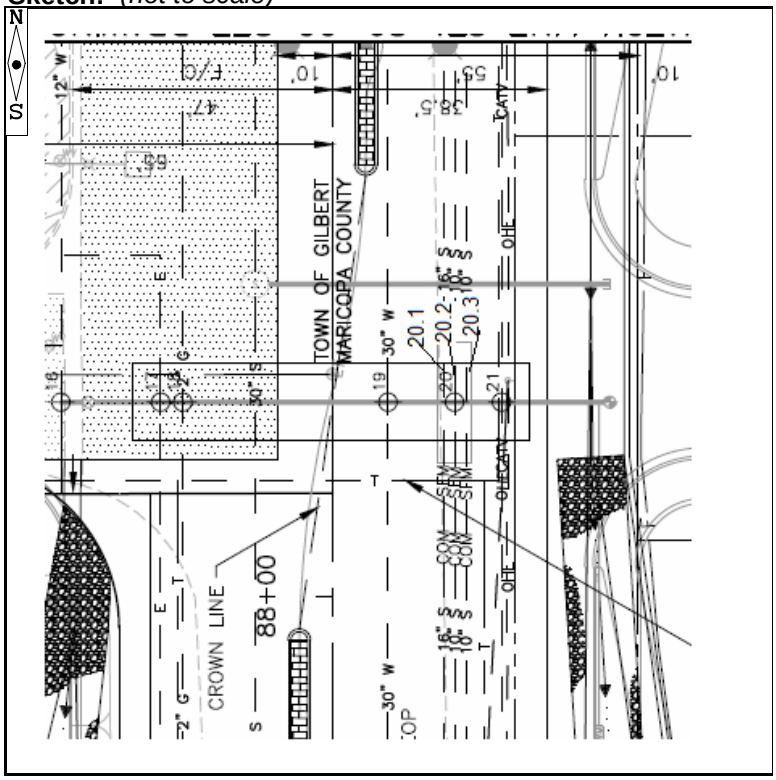
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black plastic wrapped pipe running N/S. Middle Pipe.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Stottler & Higley

Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 20.3 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 20 3

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)			
Station/Offset/Dir: *Surveyed*	88+34.74	22.0	RT

Survey Remarks:
BOTTOM ELEVATION: 1282.18 N:848755.99/ E:759812.69

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.04 (feet)

Upper: OR (feet)

Lower:

Soils Code: CH

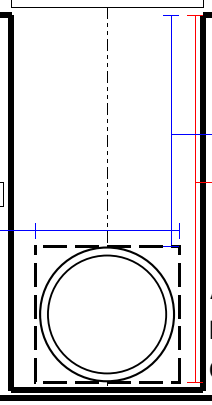
Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: SS

Structure: P

Material: STL



Utility Elevation TOP: 1283.64 (feet)

Measured Distance From Surface:

TOP: 6.40 (feet)

BOTTOM: 7.86 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	10.10	SW	WOOD POWER POLE
B:	41.90	SE	SANITAR SEWER MAN HOLE
C:	113.70	NW	WOOD POWER POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

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P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
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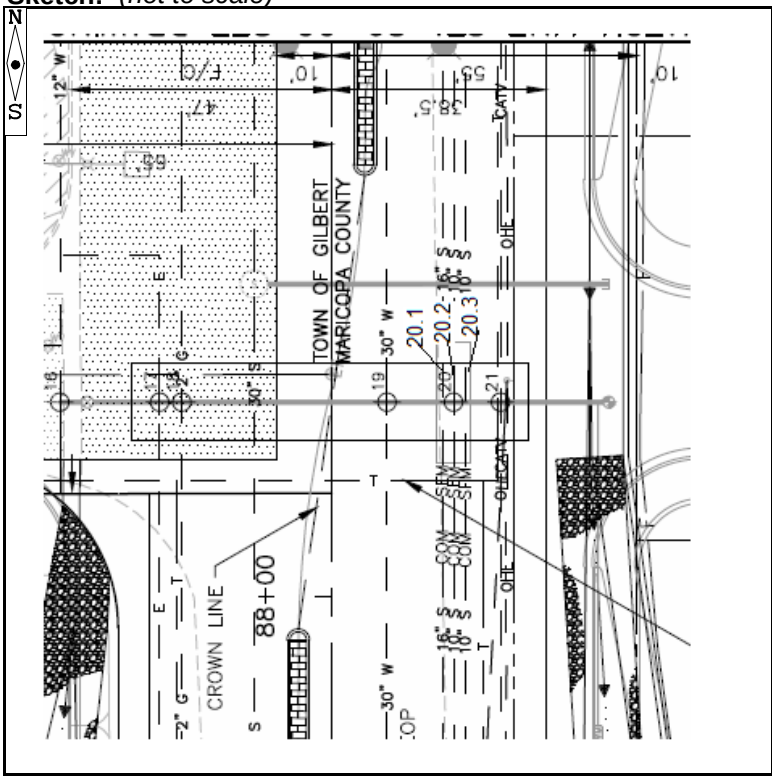
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located this pipe running N/S. This pipe is the eastern most of the three.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/19/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Stottler & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 20 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 20

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	88+35	22.0	RT
Station/Offset/Dir: *Surveyed*	88+34.75	17.5	RT

Survey Remarks:
BOTTOM ELEVATION: 1282.12 N:848755.97 / E:759808.15

Profile View (not to scale)

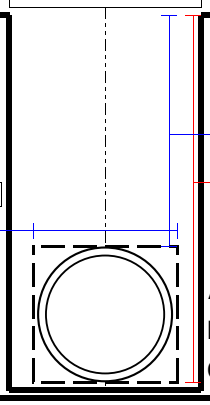
Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1290.36 (feet)

Upper: AC 0.20 (feet)
Lower:
Soils Code: GM

Visual Utility Identification Information

Size/Width: 10.00 (in)
Type Code: SS
Structure: P
Material: STL



Utility Elevation TOP: 1282.96 (feet)

Measured Distance From Surface:
TOP: 7.40 (feet)
BOTTOM: 8.23 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	14.50	SW	WOOD POWER POLE
B:	38.00	SE	SANITARY SEWER MAN HOLE
C:	114.00	NW	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
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GIP - Galvanized Iron
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PE - Poly Ethylene
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STLC- Steel Coated
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B/C - Back of Curb
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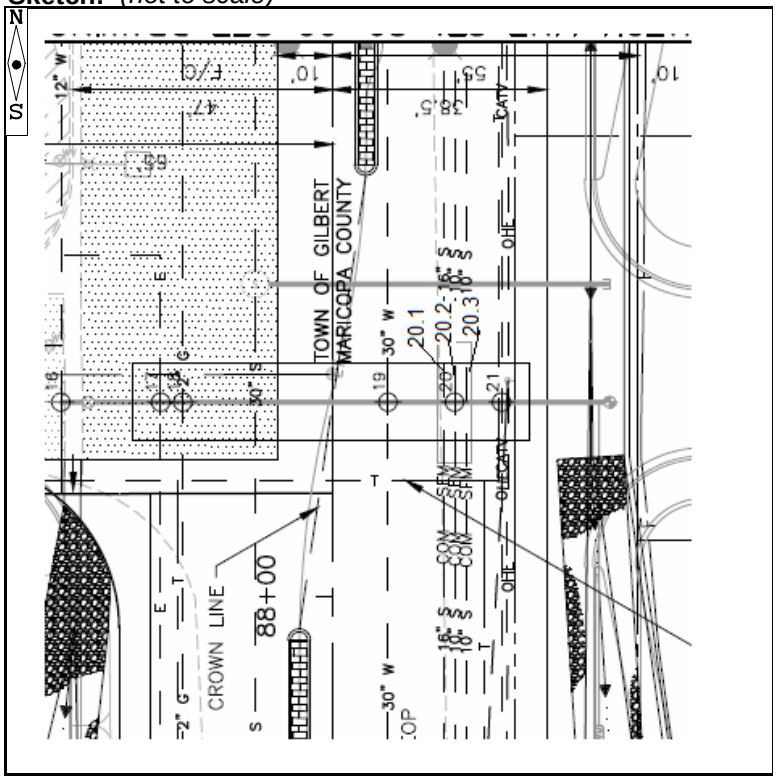
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running N/S. Western most of the three.

Sketch: *(not to scale)*



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Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Stottler & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 21 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 21

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	88+35	31.0	RT
Station/Offset/Dir: *Surveyed*	88+33.36	30.0	RT

Survey Remarks:
BOTTOM ELEVATION: 1281.24 N:848754.68 / E:759820.74

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1289.36 (feet)

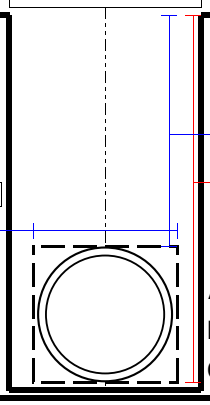
Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1281.91 (feet)

Measured Distance From Surface:
TOP: 7.45 (feet)
BOTTOM: 8.12 (feet)

Visual Utility Identification Information

Size/Width: 8.00 (in)
Type Code: TV
Structure: D
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	112.50	N	WOOD POWER
B:	49.70	SE	SANITARY SEWER MAN HOLE
C:	5.80	S	WOOD POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

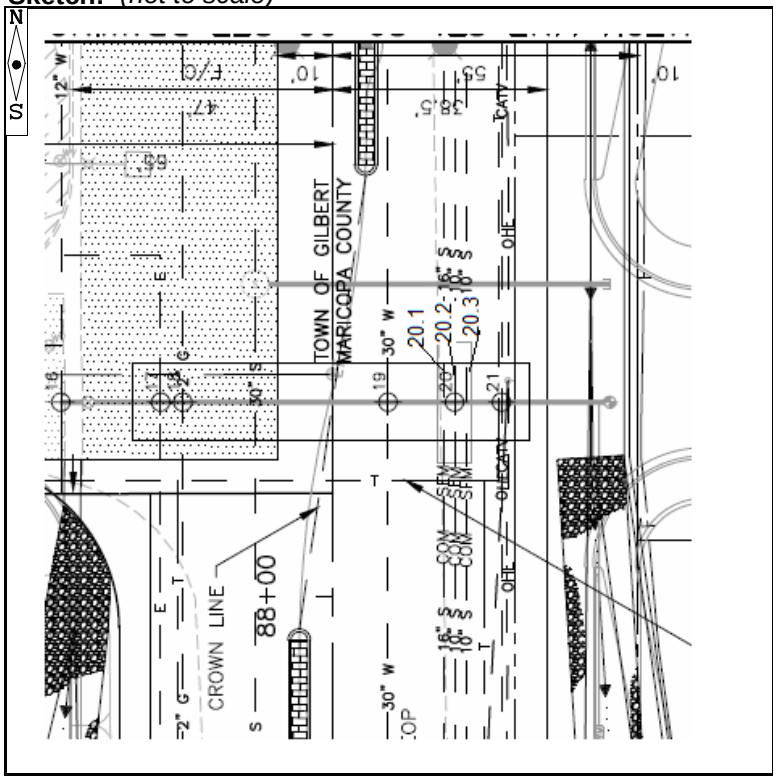
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:
We located gray pipes running N/S.

Note: CLN does cross just S. of this location.

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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site:
Truck: 21 **Crew Names:**

Client Hole#: 22 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 22

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 92+82 | 30.0 | RT
Station/Offset/Dir: *Surveyed*

Survey Remarks:

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: SEE COMMEN **Marker/Surf. Elevation:** (feet)

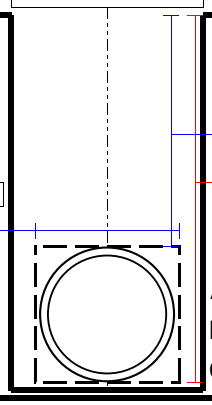
Upper: (feet)
Lower:
Soils Code:

Utility Elevation TOP: (feet)

Measured Distance From Surface:
TOP: (feet)
BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: (in)
Type Code: TEL
Structure: O
Material:



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:			
B:			
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

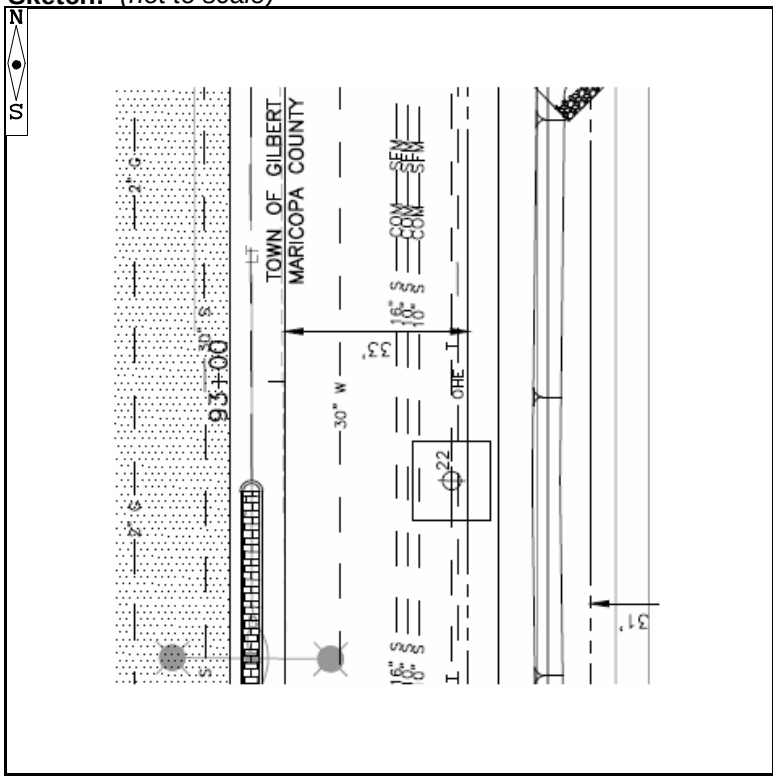
BCHH- Brass Cap
HandHole

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:

Met with ELM and there are no telephone lines in this area per Blue Stake maps.

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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Warner & Higley

Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 23 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 23

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	101+60	50.0	RT
Station/Offset/Dir: *Surveyed*	101+63.43	50.3	RT

Survey Remarks:
BOTTOM ELEVATION: 1281.13 N:850084.89 / E:759830.52

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.33 (feet)

Upper: OR (feet)

Lower:

Soils Code: GM

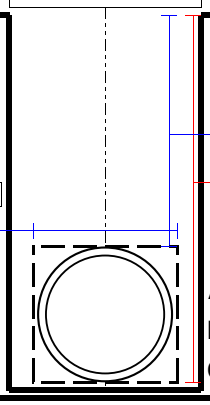
Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: RW

Structure: P

Material: STL



Utility Elevation TOP: 1282.58 (feet)

Measured Distance From Surface:

TOP: 5.75 (feet)

BOTTOM: 7.21 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	55.90	N	RECLAIMED WATER MANHOLE
B:	22.80	NE	SANITARY SEWER MANHOLE
C:	42.80	SE	WOOD POWER POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

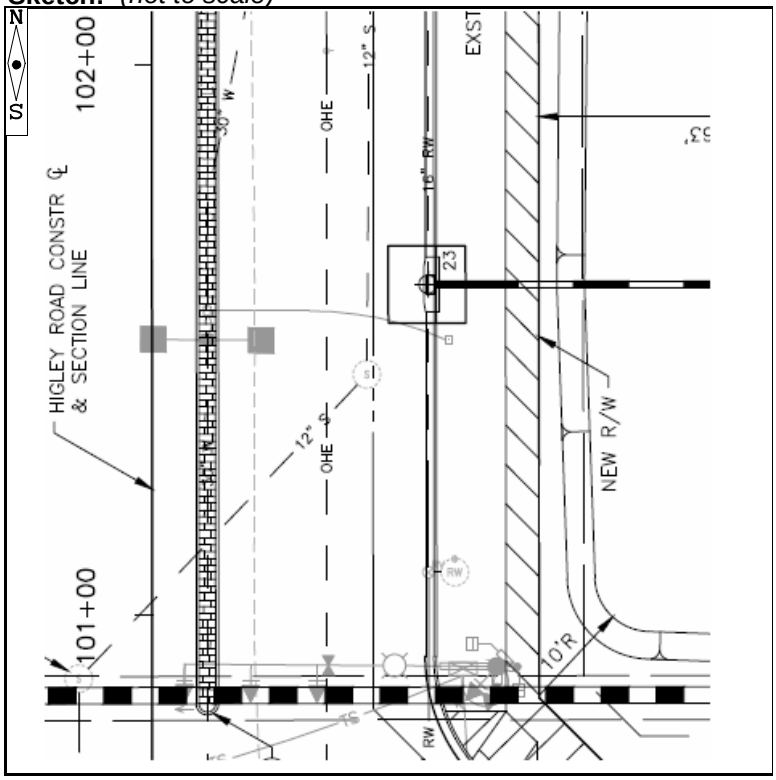
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a plastic wrapped pipe running N/S.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: N. of Warner on Higley

Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 24 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 24

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	106+35	20.0	LT
Station/Offset/Dir: *Surveyed*	106+34.86	30.3	LT

Survey Remarks:
BOTTOM ELEVATION: 1284.13 N:850555.63 / E:759745.96

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.02 (feet)

Upper: OR (feet)

Lower:

Soils Code: GM

Utility Elevation TOP: 1284.55 (feet)

Measured Distance From Surface:

TOP: 3.47 (feet)

BOTTOM: 3.89 (feet)

Visual Utility Identification Information

Size/Width: 5.00 (in)

Type Code: G

Structure: P

Material: PE

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	14.80	W	EDGE OF PAVEMENT
B:	9.90	E	E EDGE OF SLIP FORM
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

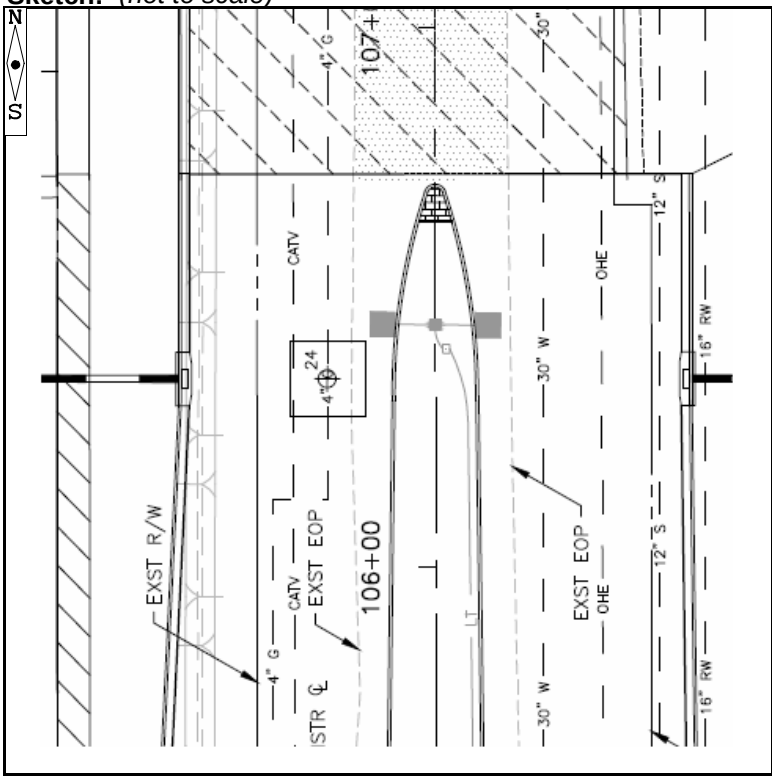
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black pipe with tracer wire running N/S.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: N. of Warner on Higley
Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 25 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 25

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested*	110+65	20.0	LT
Station/Offset/Dir: *Surveyed*	110+65.58	20.4	LT

Survey Remarks:
BOTTOM ELEVATION: 1285.04 N:850986.42 / E:759752.28

Profile View (not to scale)

Pavement & Soils Informaiton

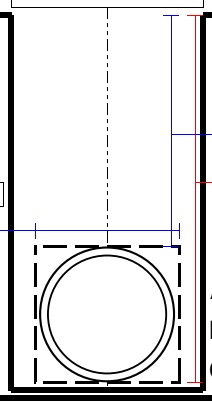
Marker: WHISKER **Marker/Surf. Elevation:** 1289.13 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1285.45 (feet)

Measured Distance From Surface:
TOP: 3.68 (feet)
BOTTOM: 4.10 (feet)

Visual Utility Identification Information
Size/Width: 5.00 (in)
Type Code: G
Structure: P
Material: PE



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	5.30	W	EDGE OF PAVEMENT
B:	19.90	E	E EDGE OF SLIP FORM
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

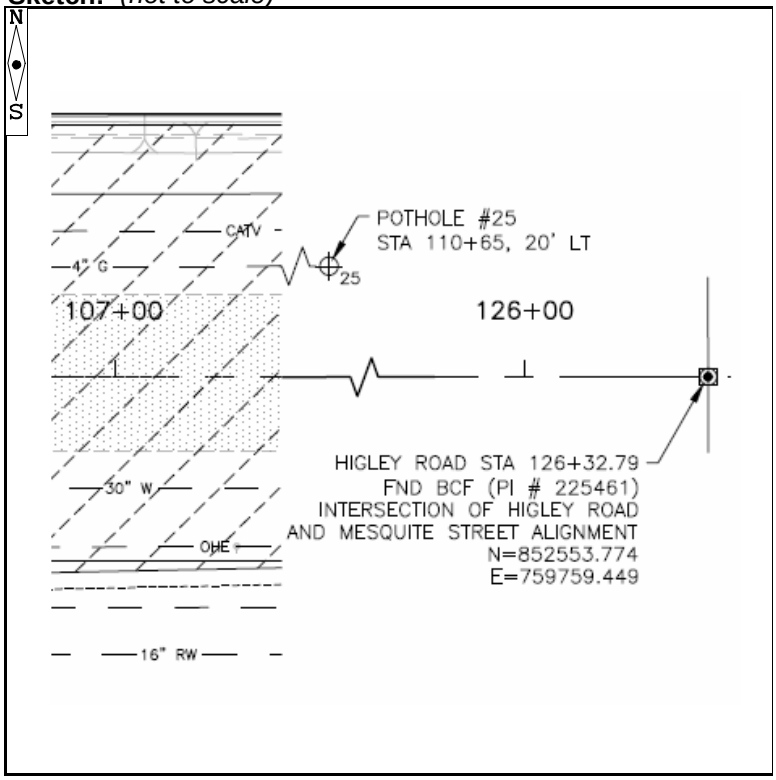
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black pipe running N/S with tracer wire.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: W. of Higley on Warner

Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 26 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 26

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 30+08 | 56.5 | RT

Station/Offset/Dir: *Surveyed*

Survey Remarks:

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: SEE COMMEN **Marker/Surf. Elevation:** (feet)

Upper: (feet)

Lower:

Soils Code: CH

Utility Elevation TOP: (feet)

Measured Distance From Surface:

TOP: (feet)

BOTTOM: (feet)

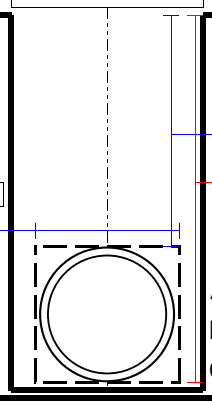
Visual Utility Identification Information

Size/Width: (in)

Type Code: TV

Structure: O

Material:



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	11.30	NE	TELCO PEDESTAL
B:	23.40	W	CABLE TV PEDESTAL
C:	50.00	S	SANITARY SEWER MANHOLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

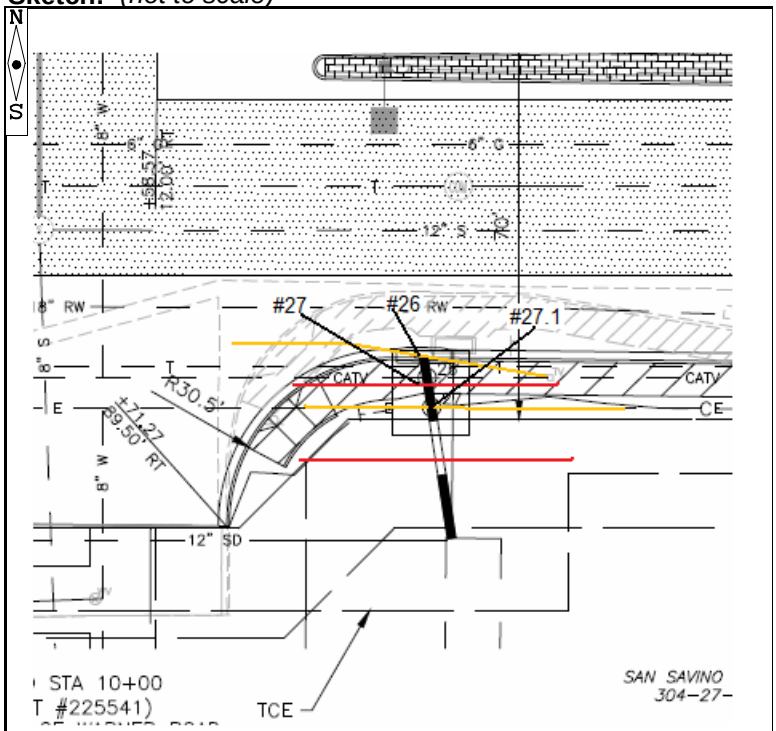
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:

We excavated to 9' deep on Blue Stake with no utility found

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: W. of Higley on Warner
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 27 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 27 1

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)			
Station/Offset/Dir: *Surveyed*	30+08.55	65.7	RT

Survey Remarks:
BOTTOM ELEVATION: 1281.34 N:849849.10 / E:759185.78

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1285.34 (feet)

Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1282.44 (feet)

Measured Distance From Surface:
TOP: 2.90 (feet)
BOTTOM: 4.00 (feet)

Visual Utility Identification Information

Size/Width: 18.00 (in)
Type Code: TEL
Structure: D
Material: PVC

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	8.10	E	TELEPHONE PEDESTAL
B:	22.00	W	CATV PEDESTAL
C:	38.30	S	SANITARY SEWER MANHOLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

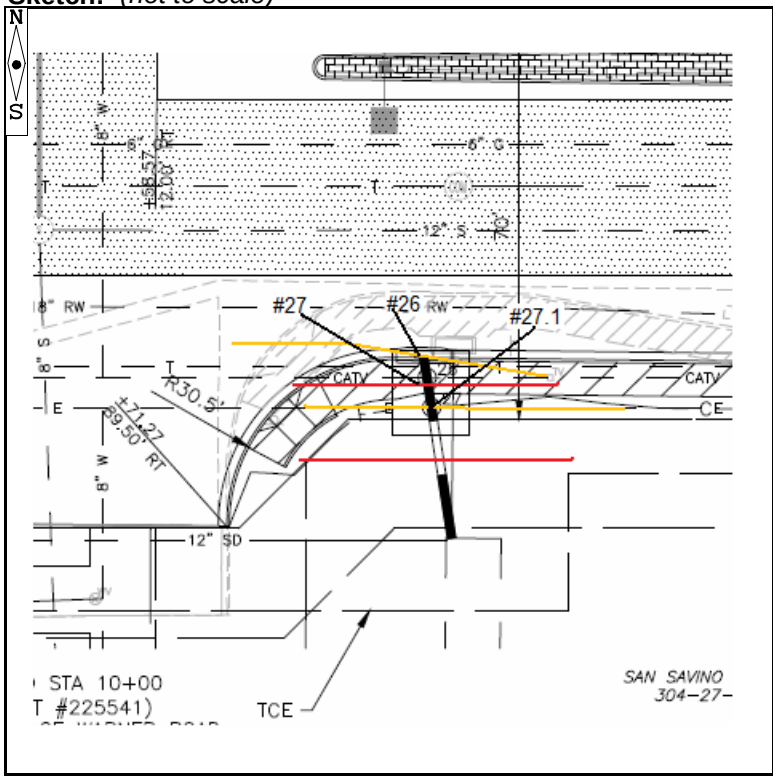
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We exposed 5 - 4in white pipes running E/W.

Note: More electrical at 77ft Rt.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: W. of Higley on Warner
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 27 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 27

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	30+09	68.0	RT
Station/Offset/Dir: *Surveyed*	30+07.36	60.0	RT

Survey Remarks:
BOTTOM ELEVATION: 1282.01 N:849854.71 / E:759184.54

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1284.67 (feet)

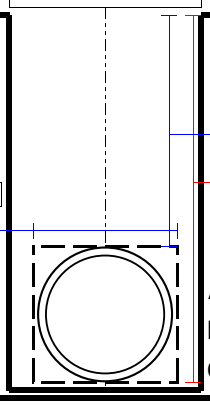
Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1282.22 (feet)

Measured Distance From Surface:
TOP: 2.45 (feet)
BOTTOM: 2.66 (feet)

Visual Utility Identification Information

Size/Width: 2.50 (in)
Type Code: E
Structure: P
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	9.40	NE	TELCO PEDESTAL
B:	23.00	W	CABLE TV PEDESTAL
C:	32.90	S	SANITARY SEWER MANHOLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

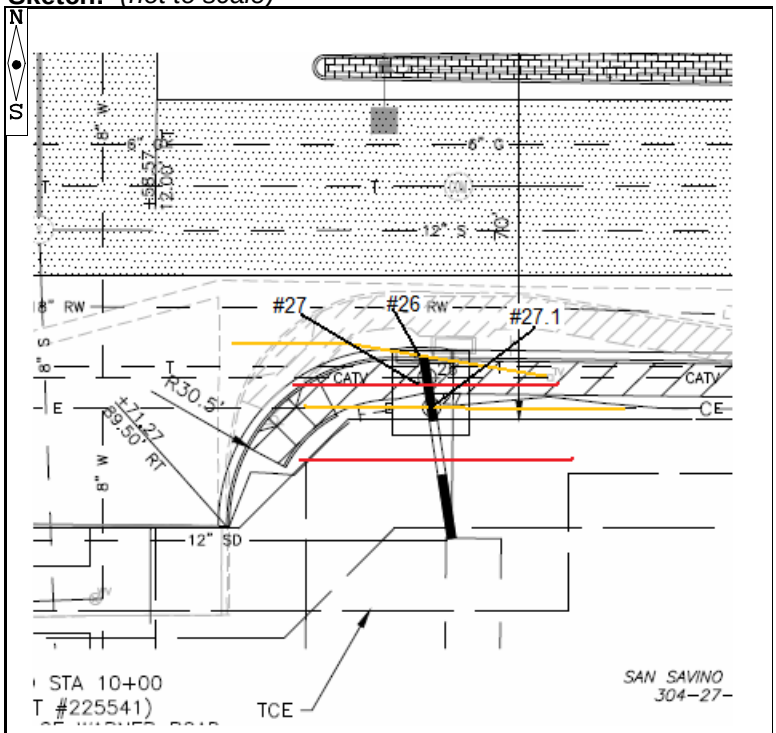
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a red pipe running E/W.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: W. of Higley on Warner

Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 28 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 28

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	32+65	15.0	LT
Station/Offset/Dir: *Surveyed*	32+65.45	13.6	LT

Survey Remarks:
BOTTOM ELEVATION: 1281.89 N:849931.07 / E:759441.83

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1287.31 (feet)

Upper: OR (feet)

Lower:

Soils Code: GW

Visual Utility Identification Information

Size/Width: 13.00 (in)

Type Code: W

Structure: P

Material: PVC

Utility Elevation TOP: 1282.97 (feet)

Measured Distance From Surface:

TOP: 4.34 (feet)

BOTTOM: 5.42 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	11.10	E	NO LEFT TURN SIGN
B:	6.90	S	S EDGE OF SLIP FORM
C:	84.50	NE	WATER VALVE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

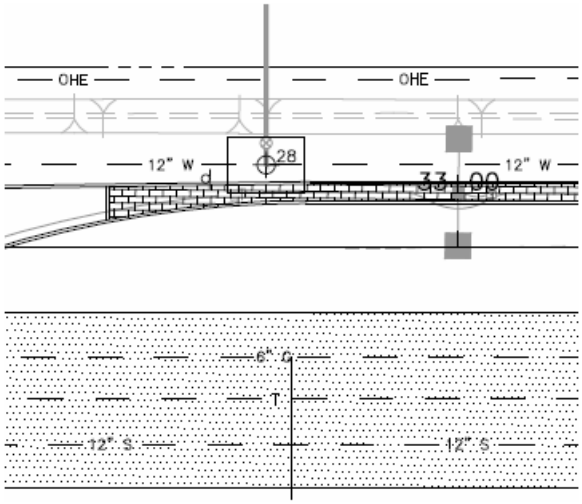
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a white pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/24/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: W. of Higley on Warner
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 29 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 29

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 33+00 | 54.0 | RT
Station/Offset/Dir: *Surveyed* 32+98.60 | 53.7 | RT

Survey Remarks:
BOTTOM ELEVATION: 1280.90 N:849864.08 / E:759475.69

Profile View (not to scale)

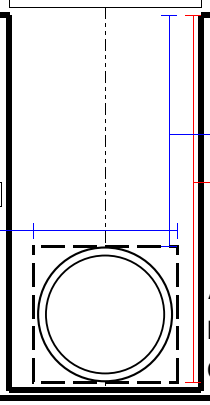
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1286.68 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Visual Utility Identification Information

Size/Width: 19.50 (in)
Type Code: RW
Structure: P
Material: PVC



Utility Elevation TOP: 1282.52 (feet)

Measured Distance From Surface:
TOP: 4.15 (feet)
BOTTOM: 5.77 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	2.80	S	FACE OF CURB
B:	21.90	NE	LIGHT POLE
C:	32.00	NE	FIBER PULL BOX

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

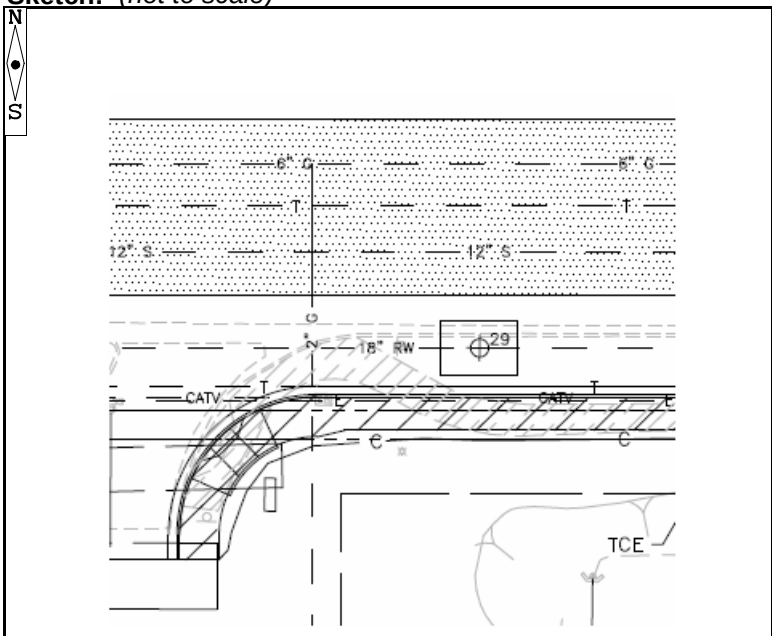
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a white pipe with purple tape running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: E. of Higley on Warner

Truck: 21 **Crew Names:** Ken & Jesus

Client Hole#: 30 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 30

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	41+65	14.0	LT
Station/Offset/Dir: *Surveyed*	41+64.33	12.3	LT

Survey Remarks:
BOTTOM ELEVATION: 1284.52 N:849938.46 / E:760340.70

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.12 (feet)

Upper: OR (feet)

Lower:

Soils Code: GM

Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: W

Structure: P

Material: PVC

Utility Elevation TOP: 1285.98 (feet)

Measured Distance From Surface:

TOP: 4.14 (feet)

BOTTOM: 5.60 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	27.90	NW	SANITARY SEWER MAN HOLE
B:	7.70	S	S EDGE ON SLIP FORM
C:	29.80	E	WATER VALVE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

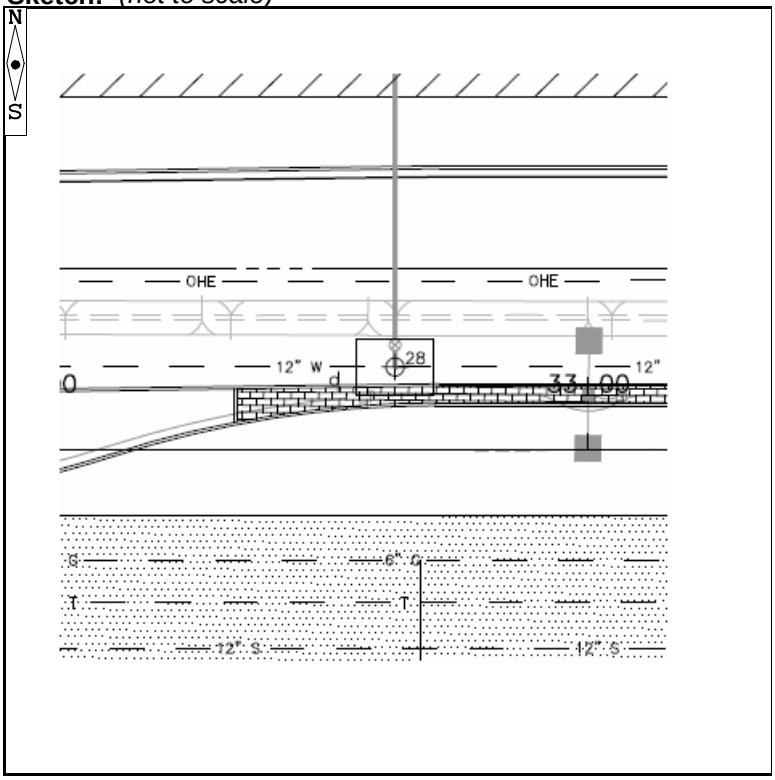
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a turquoise pipe running E/W.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: E. of Higley on Warner
Truck: 21 **Crew Names:** Ken & Jesus

Client Hole#: 31 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 31

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	44+60	14.0	LT
Station/Offset/Dir: *Surveyed*	44+58.99	12.4	LT

Survey Remarks:
BOTTOM ELEVATION: 1285.05 N:849941.25 / E:760635.35

Profile View (not to scale)

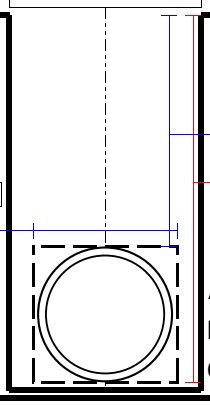
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.95 (feet)

Upper: OR (feet)
Lower:
Soils Code: CH

Visual Utility Identification Information

Size/Width: 17.50 (in)
Type Code: W
Structure: P
Material: PVC



Utility Elevation TOP: 1286.51 (feet)

Measured Distance From Surface:
TOP: 4.44 (feet)
BOTTOM: 5.90 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	43.80	NW	WOOD POWER POLE
B:	7.70	S	S EDGE OF SLIP FORM
C:	167.30	W	WATER VALVE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap
HandHole

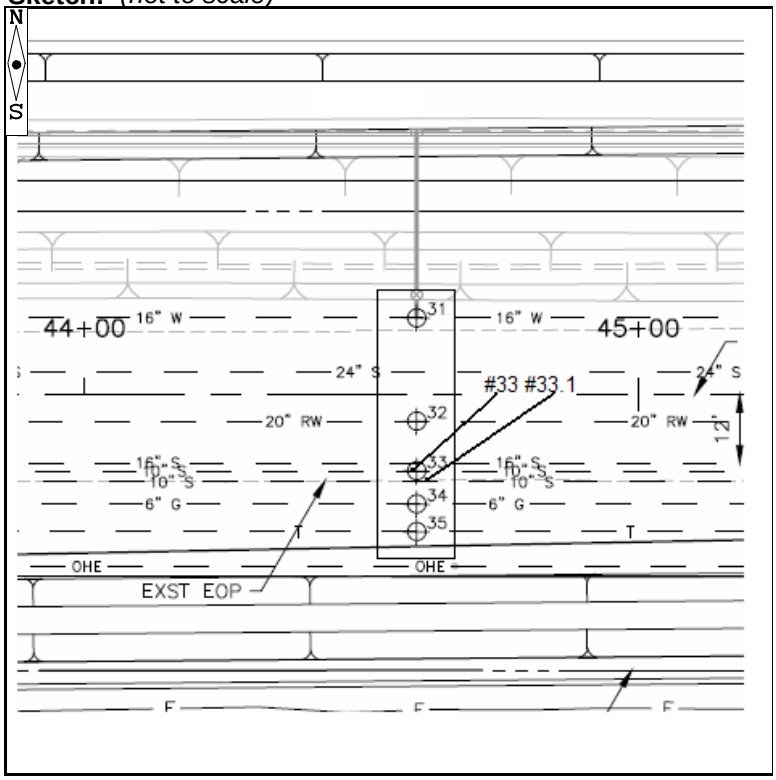
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: E. of Higley on Warner
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 32 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 32

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	44+60	5.0	RT
Station/Offset/Dir: *Surveyed*	44+60.51	4.0	RT

Survey Remarks:
BOTTOM ELEVATION: 1281.15 N:849941.25 / E:760635.35

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1290.54 (feet)

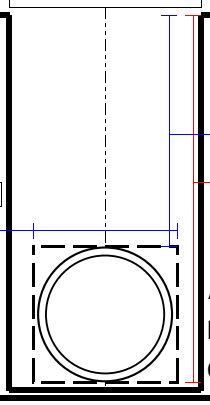
Upper: AC 0.40 (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1282.94 (feet)

Measured Distance From Surface:
TOP: 7.60 (feet)
BOTTOM: 9.39 (feet)

Visual Utility Identification Information

Size/Width: 21.50 (in)
Type Code: RW
Structure: P
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	27.50	NW	WOOD POWER POLE
B:	23.90	S	S EDGE SLIP FORM
C:			

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
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CIP - Cast Iron Pipe
CIPP- Cast in Place
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GIP - Galvanized Iron
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RC - Reinforced Conc.
SL - Slurry
STL - Steel
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WD - Wood

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P - Pipe
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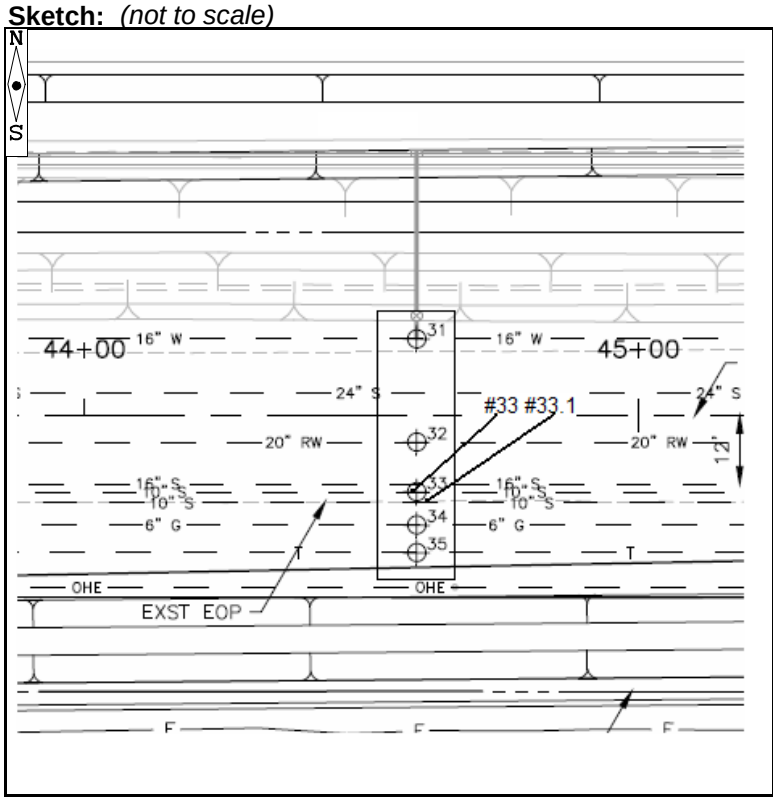
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running E/W

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: E. of Higley on Warner
Truck: 21 **Crew Names:** Ken & Jesus

Client Hole#: 33.1 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 33 1

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)			
Station/Offset/Dir: *Surveyed*	44+60.45	17.4	RT

Survey Remarks:
BOTTOM ELEVATION: 1283.62 N:849911.49 / E:760637.08

Profile View (not to scale)

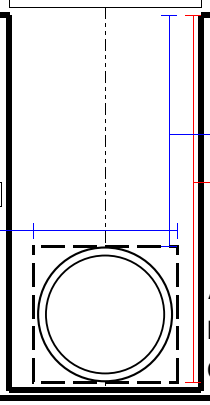
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1289.93 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Visual Utility Identification Information

Size/Width: 11.50 (in)
Type Code: FM
Structure: P
Material: STL



Utility Elevation TOP: 1284.58 (feet)

Measured Distance From Surface:
TOP: 5.35 (feet)
BOTTOM: 6.31 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	16.80	NW	WOOD POWER POLE
B:	167.00	SW	WATER VALVE
C:	35.40	S	S EDGE OF SLIP FORM

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
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C - Cable
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B/C - Back of Curb
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P/P - Power Pole
S/W - Side Walk
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WV - Water Valve

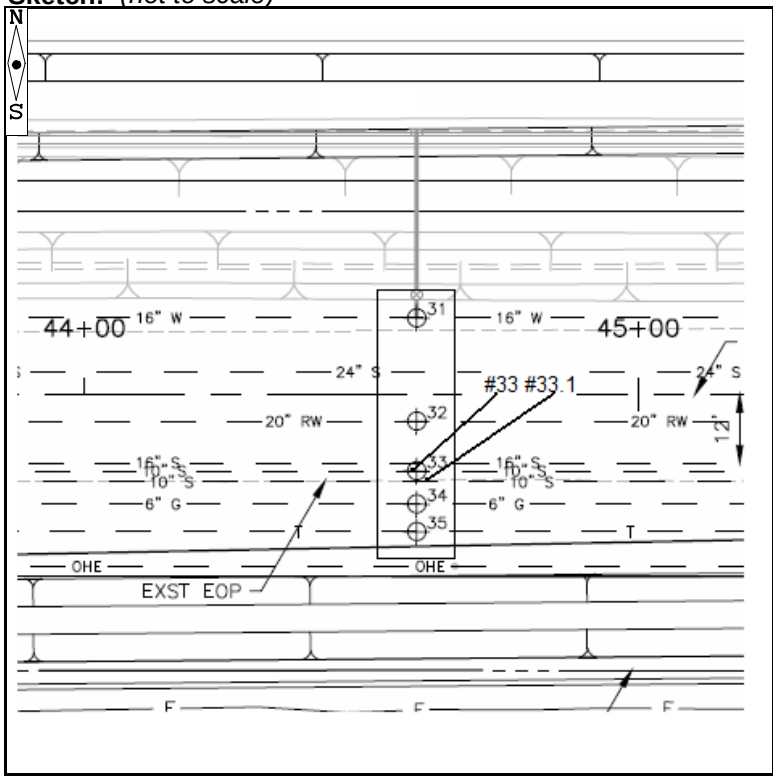
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a plastic wrapped pipe running E/W. Middle Pipe.

Note: We designated another pipe N. of this location in the road.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: E. of Higley on Warner
Truck: 21 **Crew Names:** Ken & Jesus

Client Hole#: 33 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 33

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested*	44+60	14.0	RT
Station/Offset/Dir: *Surveyed*	44+60.51	15.2	RT

Survey Remarks:
BOTTOM ELEVATION: 1284.33 N:849913.65 / E:760637.12

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.03 (feet)

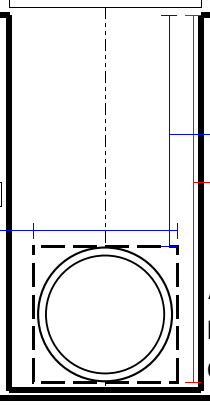
Upper: OR (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1285.28 (feet)

Measured Distance From Surface:
TOP: 4.75 (feet)
BOTTOM: 5.71 (feet)

Visual Utility Identification Information

Size/Width: 11.50 (in)
Type Code: FM
Structure: P
Material: STL



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	14.70	NW	WOOD POWER POLE
B:	169.20	SW	WATER VALVE 167
C:	37.40	S	S EDGE OF SLIP FORM 35.4

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap
HandHole

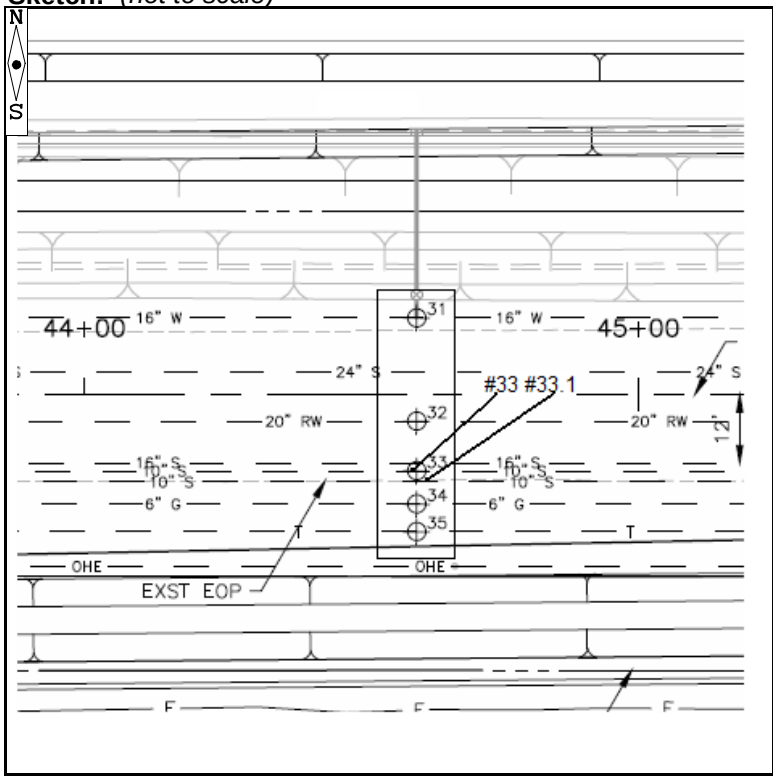
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a plastic wrapped pipe running E/W.
Southern most.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: E. of Higley on Warner
Truck: 21 **Crew Names:** Ken & Jesus

Client Hole#: 34 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 34

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	44+60	20.0	RT
Station/Offset/Dir: *Surveyed*	44+59.95	26.0	RT

Survey Remarks:
BOTTOM ELEVATION: 1285.62 N:849902.90 / E:760636.66

Profile View (not to scale)

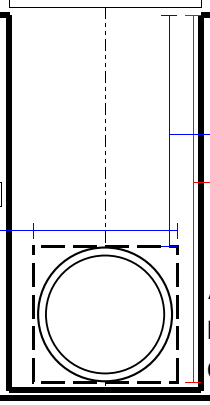
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.10 (feet)

Upper: OR
Lower: SL 6.40 (feet)
Soils Code: SL

Visual Utility Identification Information

Size/Width: 7.00 (in)
Type Code: G
Structure: P
Material: PE



Utility Elevation TOP: 1286.20 (feet)

Measured Distance From Surface:
TOP: 3.90 (feet)
BOTTOM: 4.48 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	8.40	NW	WOOD POWER POLE
B:	170.90	SW	WATER VALVE
C:	48.40	S	S EDGE OF SLIP FORM

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

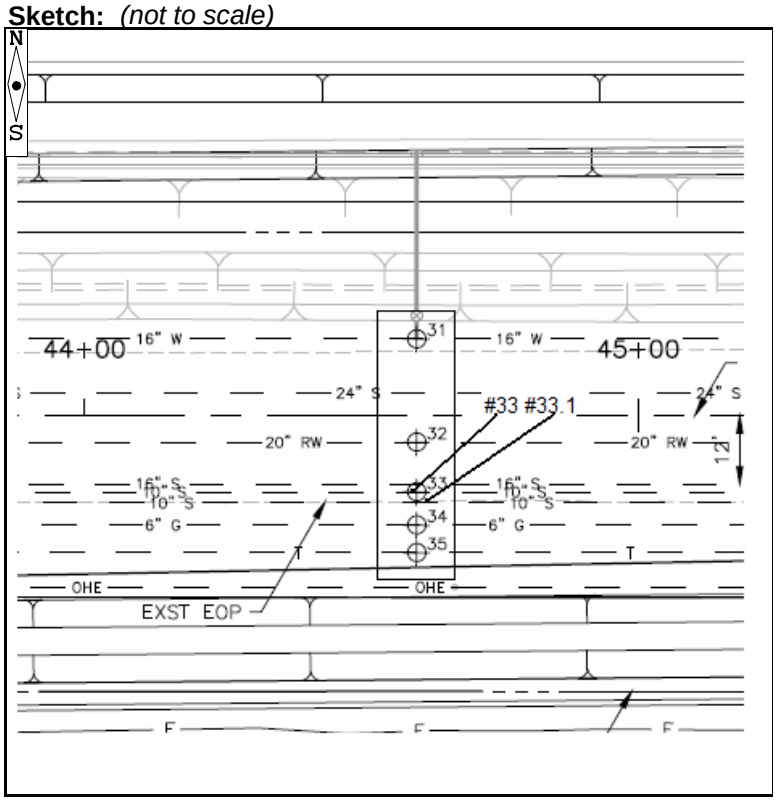
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe encased in slurry running E/W.

Sketch: *(not to scale)*



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(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:**
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site:
Truck: 21 **Crew Names:**

Client Hole#: 35 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 35

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 44+60 | 25.0 | RT
Station/Offset/Dir: *Surveyed*

Survey Remarks:

Profile View (not to scale)

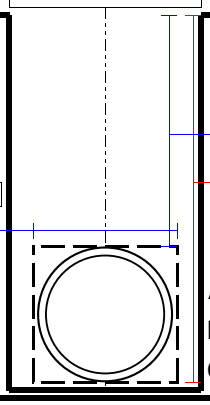
Pavement & Soils Informaiton

Marker: **Marker/Surf. Elevation:** (feet)

Upper: (feet)
Lower:
Soils Code:

Visual Utility Identification Information

Size/Width: (in)
Type Code:
Structure:
Material:



Utility Elevation TOP: (feet)

Measured Distance From Surface:
TOP: (feet)
BOTTOM: (feet)

Physical SWING TIE Information		
Dist. (ft)	Dir.	from PERMANENT existing fixture
A:		
B:		
C:		

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

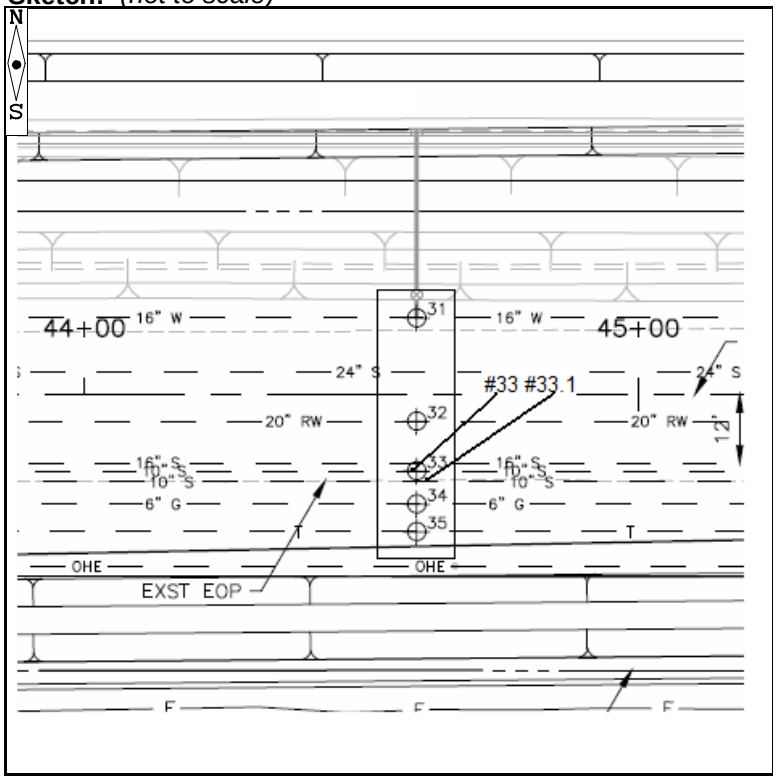
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:

Met with ELM and was told Telco is on power poles over head.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: E. of Higley on Warner
Truck: 21 **Crew Names:** Ken & Jesus

Client Hole#: 36 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 36

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	47+56	14.0	LT
Station/Offset/Dir: *Surveyed*	47+56.68	12.1	LT

Survey Remarks:
BOTTOM ELEVATION: 1286.40 N:849943.64 / E:760933.03

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1291.76 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1287.86 (feet)

Measured Distance From Surface:
TOP: 3.90 (feet)
BOTTOM: 5.36 (feet)

Visual Utility Identification Information

Size/Width: 17.50 (in)
Type Code: W
Structure: P
Material: PVC

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	35.70	NW	SANITARY SEWER MANHOLE
B:	55.50	NE	WOOD POWER POLE
C:	130.50	E	WATER VALVE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

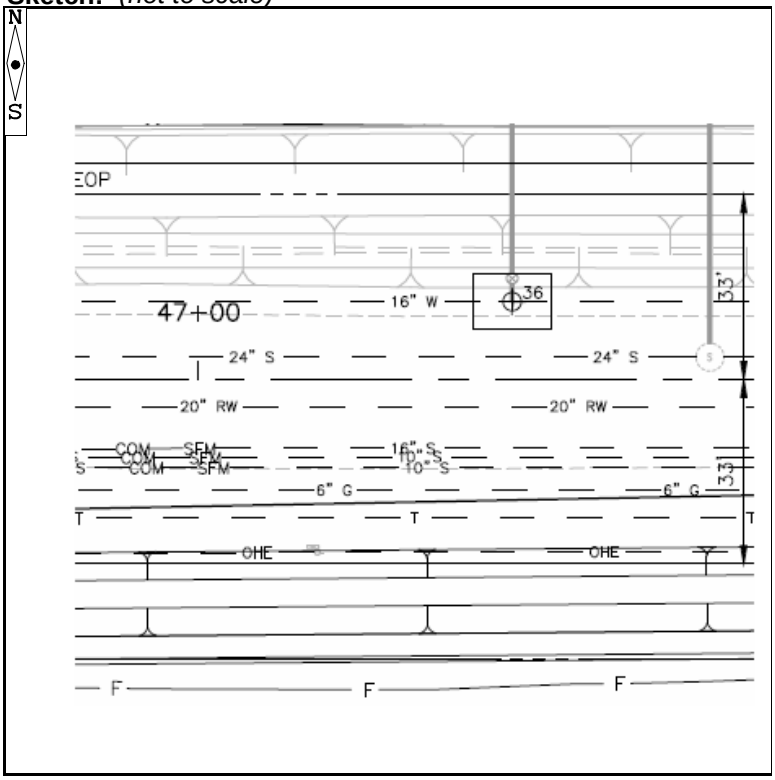
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a turquoise pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site:

Truck: 21 **Crew Names:**

Client Hole#: 37 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 37

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 49+50 | 25.0 | RT

Station/Offset/Dir: *Surveyed*

Survey Remarks:

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: **Marker/Surf. Elevation:** (feet)

Upper: (feet)

Lower:

Soils Code:

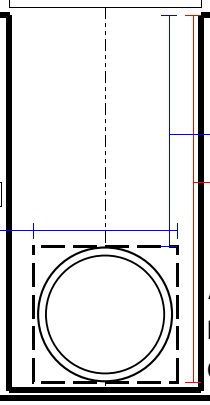
Visual Utility Identification Information

Size/Width: (in)

Type Code:

Structure:

Material:



Utility Elevation TOP: (feet)

Measured Distance From Surface:

TOP: (feet)

BOTTOM: (feet)

Physical SWING TIE Information		
Dist. (ft)	Dir.	from PERMANENT existing fixture
A:		
B:		
C:		

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

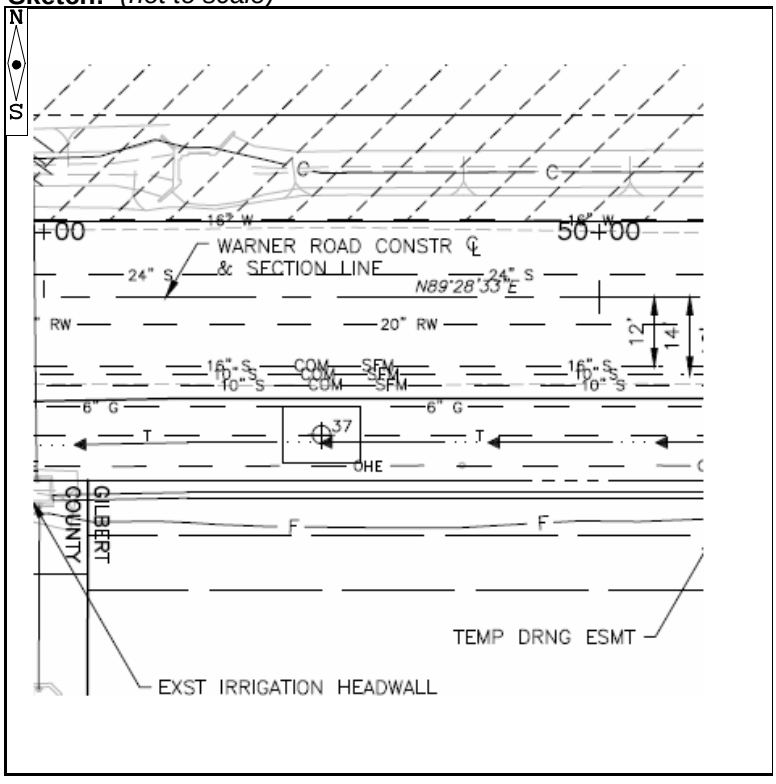
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:

Met with ELM and was told Telco is on power poles over head.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201300151 **Date Located:** 10/21/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Warner & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Juan

Client Hole#: 101 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 101

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	35+75.35	97.5	LT
Station/Offset/Dir: *Surveyed*	35+76.35	96.4	LT

Survey Remarks:
BOTTOM ELEVATION: 1282.44 N:850017.12 / E:759751.84

Profile View (not to scale)

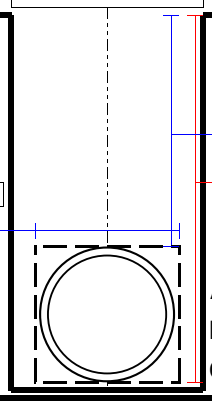
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.60 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Visual Utility Identification Information

Size/Width: 7.00 (in)
Type Code: G
Structure: P
Material: PE



Utility Elevation TOP: 1283.02 (feet)

Measured Distance From Surface:
TOP: 5.58 (feet)
BOTTOM: 6.17 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	17.60	NW	SANITARY SEWER MANHOLE
B:	74.00	NE	SIGNAL POLE
C:	12.00	E	E EDGE OF SLIP FORM

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

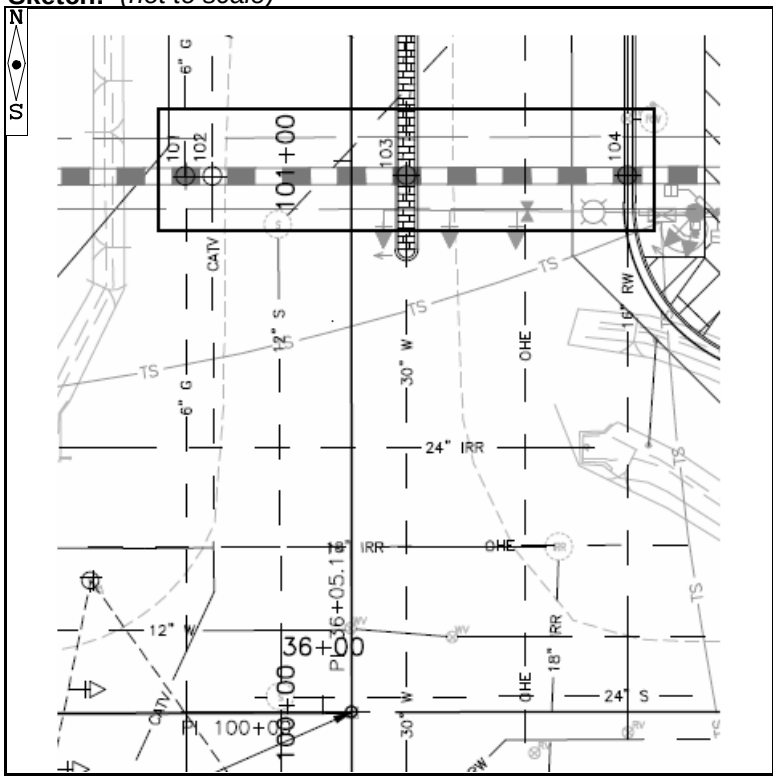
BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running N/S.

Note: 2.5 steel gas pipe 2' E. of marker at 4.10 ft deep.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013
Project: Higley & Warner Intersection Improvements
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Warner & Higley
Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 102 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 102

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	35+80.22	97.5	LT
Station/Offset/Dir: *Surveyed*	35+79.31	96.4	LT

Survey Remarks:
BOTTOM ELEVATION: 1284.03 N:850017.16 / E:759754.80

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.49 (feet)

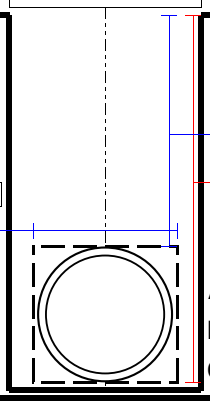
Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: 1284.70 (feet)

Measured Distance From Surface:
TOP: 3.79 (feet)
BOTTOM: 4.46 (feet)

Visual Utility Identification Information

Size/Width: 8.00 (in)
Type Code: TV
Structure: D
Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	15.00	NW	SANITARY SEWER MANHOLE
B:	74.80	NE	SIGNAL POLE
C:	14.90	E	E EDGE OF SLIP FORM

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

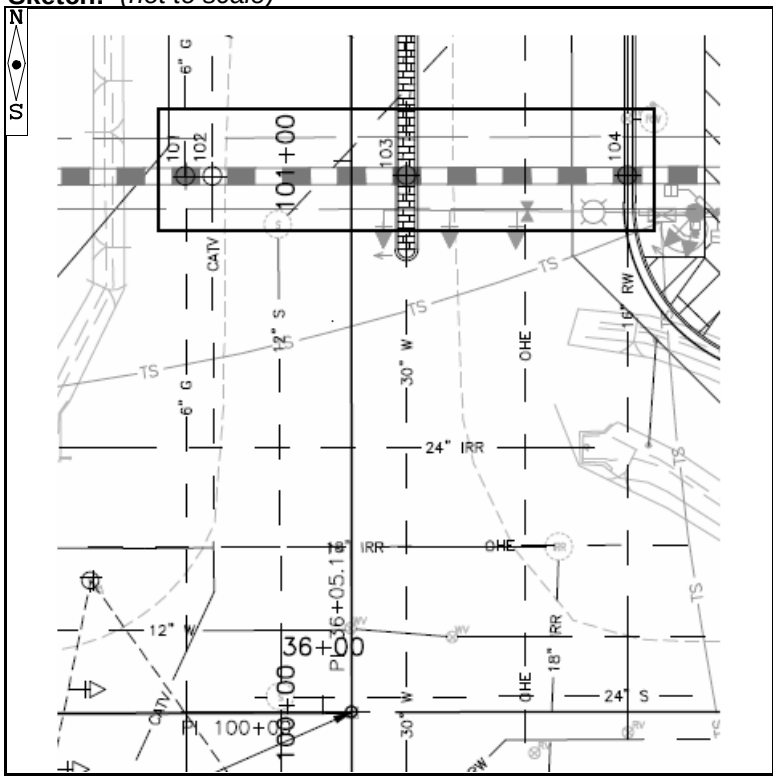
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located gray pipes running N/S.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/23/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Warner & Higley

Truck: 21 **Crew Names:** Ken, Jesus & Bill

Client Hole#: 103 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 103

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	36+15.24	97.5	LT
Station/Offset/Dir: *Surveyed*	36+14.69	97.6	LT

Survey Remarks:
BOTTOM ELEVATION: 1276.40 N:850018.72 / E:759790.31

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1288.60 (feet)

Upper: AC 0.40 (feet)

Lower:

Soils Code: GW

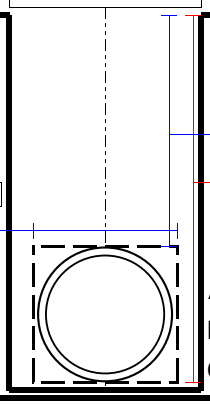
Visual Utility Identification Information

Size/Width: 39.00 (in)

Type Code: W

Structure: P

Material: RC



Utility Elevation TOP: 1279.65 (feet)

Measured Distance From Surface:

TOP: 8.95 (feet)

BOTTOM: 12.19 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	24.60	NE	SANITARY SEWER MANHOLE
B:	55.00	SW	SANITARY SEWER MANHOLE
C:	46.50	SW	RECLAIMED WATER MANHOLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

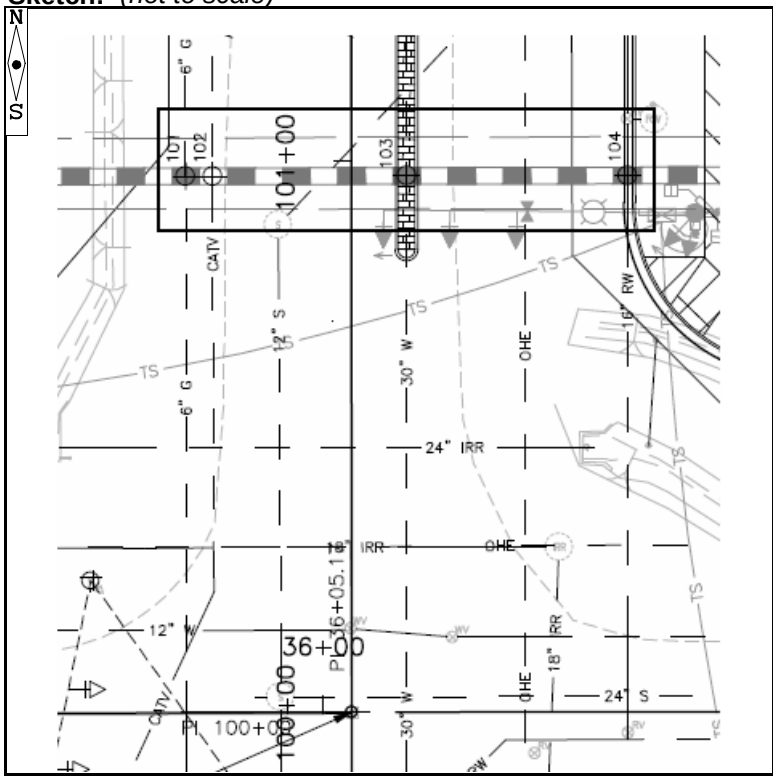
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
we located a pipe with pea gravel over it running N/S.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201300151 **Date Located:** 10/22/2013

Project: Higley & Warner Intersection Improvements

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Warner & Higley

Truck: 21 **Crew Names:** Ken & Jesus

Client Hole#: 104 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 104

BM Desc.: BCHH @ WARNER RD & HIGLEY RD **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	36+55.25	97.5	LT
Station/Offset/Dir: *Surveyed*	36+55.38	96.3	LT

Survey Remarks:
BOTTOM ELEVATION: 1277.79 N:850017.81 / E:759831.00

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.25 (feet)

Upper: OR (feet)

Lower:

Soils Code: GM

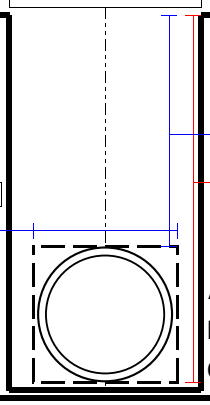
Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: RW

Structure: P

Material: STL



Utility Elevation TOP: 1279.25 (feet)

Measured Distance From Surface:

TOP: 9.00 (feet)

BOTTOM: 10.46 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	12.60	SW	RW MANHOLE
B:	48.90	SE	SANITARY SEWER MAN HOLE
C:	85.00	NW	WOOD POWER POLE

TERMS:

UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

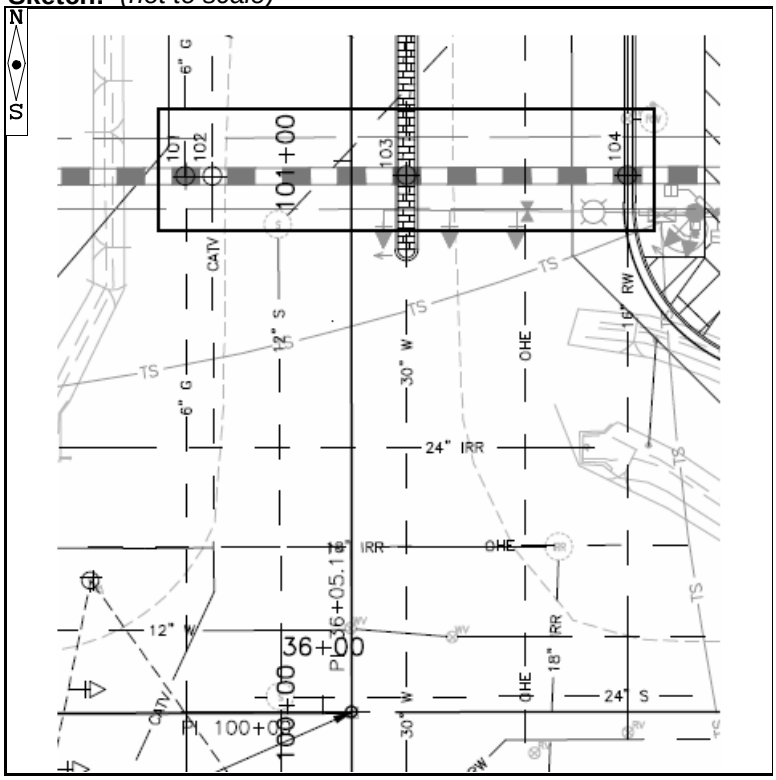
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a plastic wrapped pipe running N/S.

Sketch: *(not to scale)*



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **1**
CLIENT HOLE NO.: **1**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

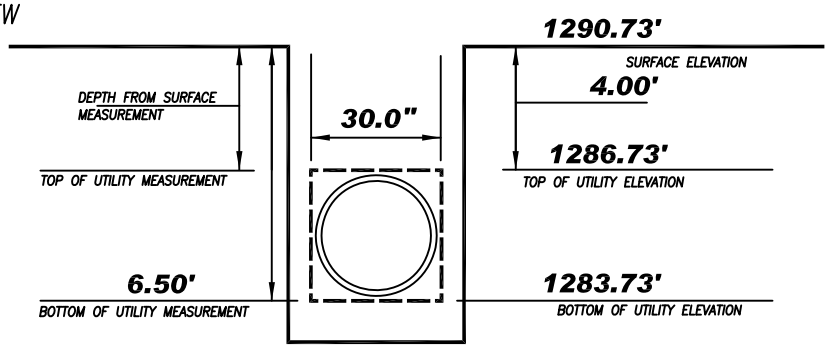
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 78+80 31 LT
SURVEYED STATION/OFFSET: **78+80.26 31.32' LT.**
REQUESTED NORTHING: **847801** EASTING: **759767**
SURVEYED NORTHING: **847801.13** EASTING: **759766.77**
ELEVATION OF FINISH SURFACE: **1290.73'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.00'**
ELEVATION OF TOP OF FACILITY: **1286.73'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **30.0" ELECTRICAL DUCT / CC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

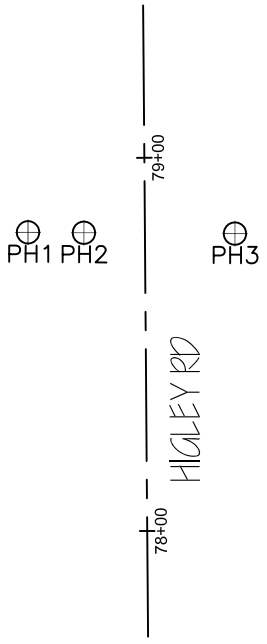
Expires: 09/30/2014

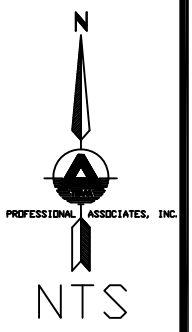
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 1

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **2**
CLIENT HOLE NO.: **2**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

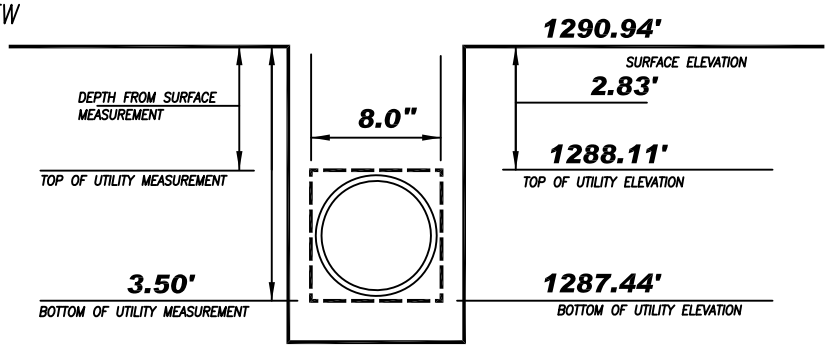
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 78+80 28 LT
SURVEYED STATION/OFFSET: **78+80.12 28.17' LT.**
REQUESTED NORTHING: **847801** EASTING: **759770**
SURVEYED NORTHING: **847801.01** EASTING: **759769.91**
ELEVATION OF FINISH SURFACE: **1290.94'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **2.83'**
ELEVATION OF TOP OF FACILITY: **1288.11'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **8.0" TELEPHONE DUCT / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 10/24/13
ARIZONA, U.S.A.

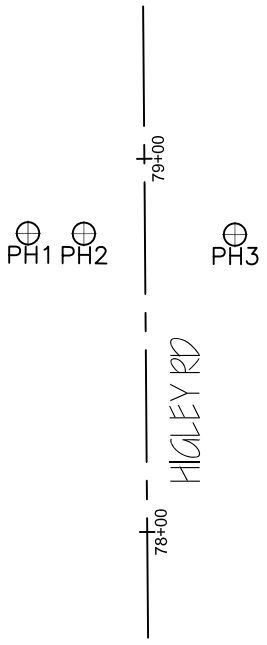
Expires: 09/30/2014

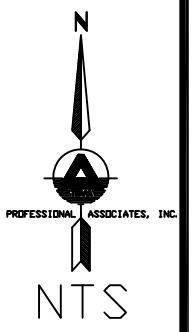
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 2

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **3**
CLIENT HOLE NO.: **3**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

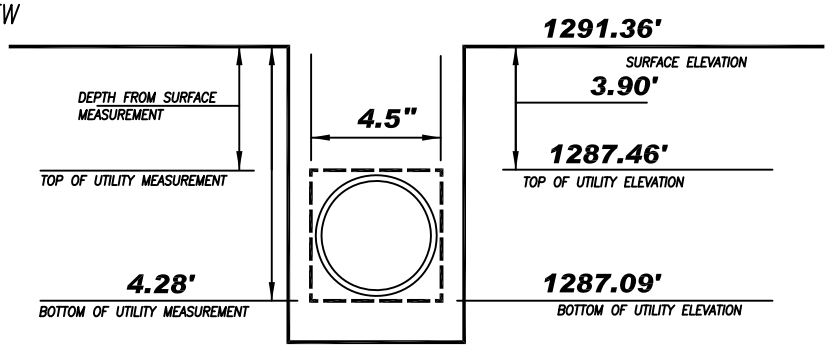
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 78+80 26 RT
SURVEYED STATION/OFFSET: **78+79.49 24.12' RT.**
REQUESTED NORTHING: **847801** EASTING: **759824**
SURVEYED NORTHING: **847800.79** EASTING: **759822.21**
ELEVATION OF FINISH SURFACE: **1291.36'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.90'**
ELEVATION OF TOP OF FACILITY: **1287.46'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.10'** SOIL TYPE: **GM**
O.D./TYPE: **4.5" TELEPHONE PIPE / PVC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

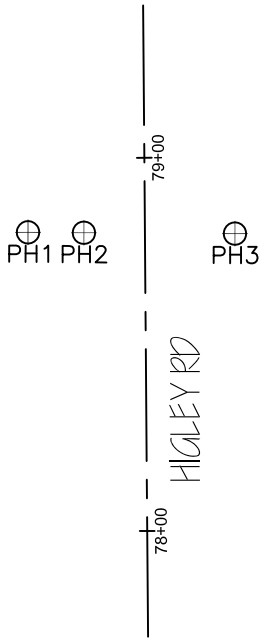
Expires: 09/30/2014

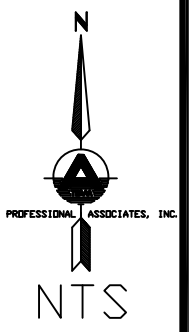
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 3

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE





NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110.4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **4**
CLIENT HOLE NO.: **4**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

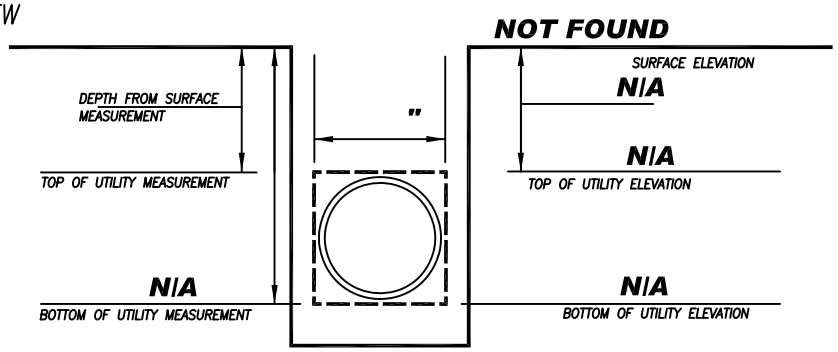
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 78+80 41 RT
SURVEYED STATION/OFFSET: **NOT FOUND**
REQUESTED NORTHING: **847801** EASTING: **759839**
SURVEYED NORTHING: **N/A** EASTING: **N/A**
ELEVATION OF FINISH SURFACE: **N/A**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **N/A**
ELEVATION OF TOP OF FACILITY: **N/A**
WAS REQUESTED UTILITY FOUND? ☐YES ☒NO
PAVING THICKNESS AND TYPE : **OR**
O.D./TYPE: **" CABLE TV O**
MARKER TYPE: **SEE COMMENTS**
SOIL TYPE: **CH**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 10/24/2013
ARIZONA, U.S.A.

Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 4

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE

Comments: We excavated through very hard soil to 11' deep.

Note: No TV found

10/21/13 - Went 11ft deep again to the East of first location. Not Found!

N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **5**
CLIENT HOLE NO.: **5**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

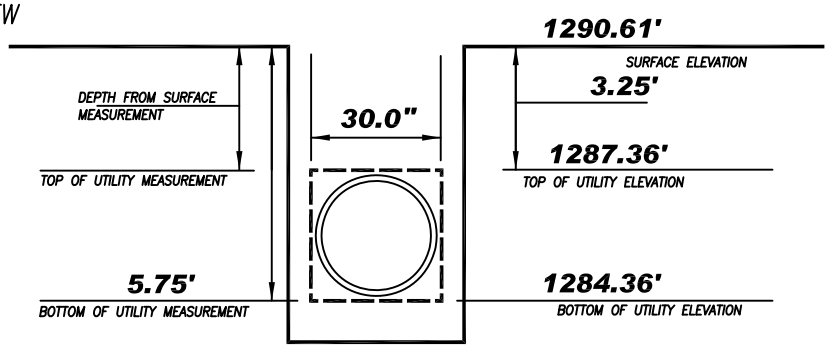
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 81+02 31 LT
SURVEYED STATION/OFFSET: **81+02.27 31.29' LT.**
REQUESTED NORTHING: **848023** EASTING: **759765**
SURVEYED NORTHING: **848023.14** EASTING: **759765.07**
ELEVATION OF FINISH SURFACE: **1290.61'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.25'**
ELEVATION OF TOP OF FACILITY: **1287.36'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **30.0" ELECTRICAL DUCT / CC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

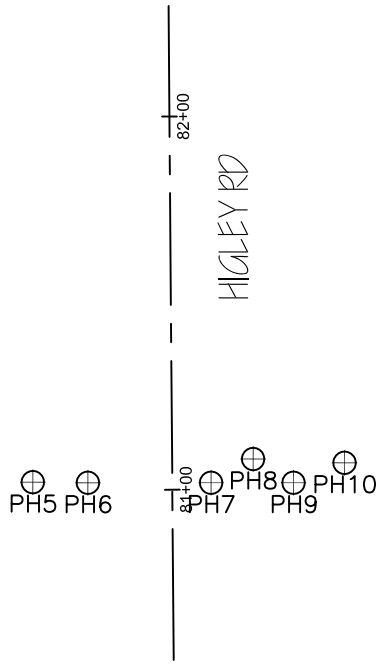
Expires: 09/30/2014

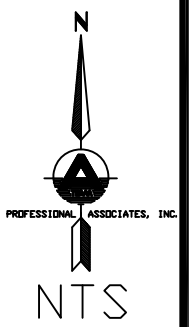
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 5

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **6**
CLIENT HOLE NO.: **6**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

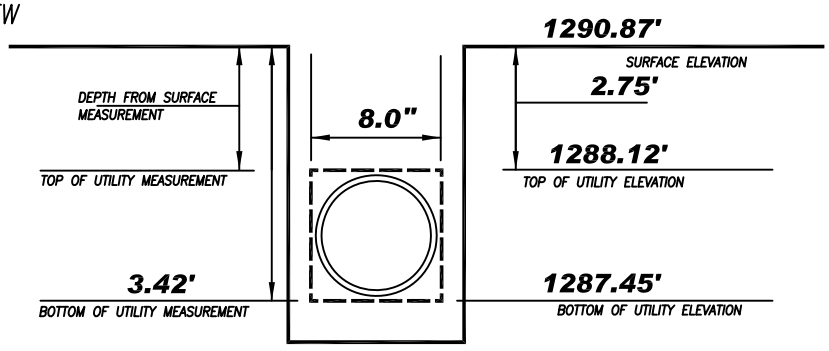
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 81+02 28 LT
SURVEYED STATION/OFFSET: **81+02.07 26.71' LT.**
REQUESTED NORTHING: **848023** EASTING: **759768**
SURVEYED NORTHING: **848022.97** EASTING: **759769.65**
ELEVATION OF FINISH SURFACE: **1290.87'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **2.75'**
ELEVATION OF TOP OF FACILITY: **1288.12'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **8.0" TELEPHONE DUCT / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

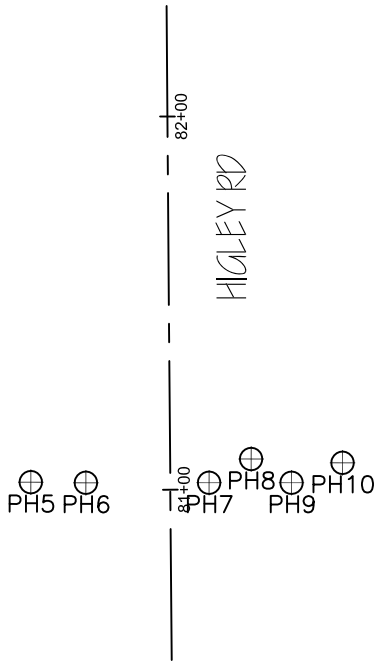
Expires: 09/30/2014

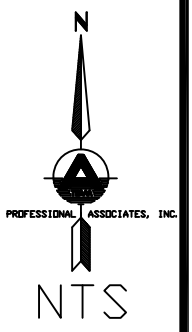
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 6

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **7**
CLIENT HOLE NO.: **7**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

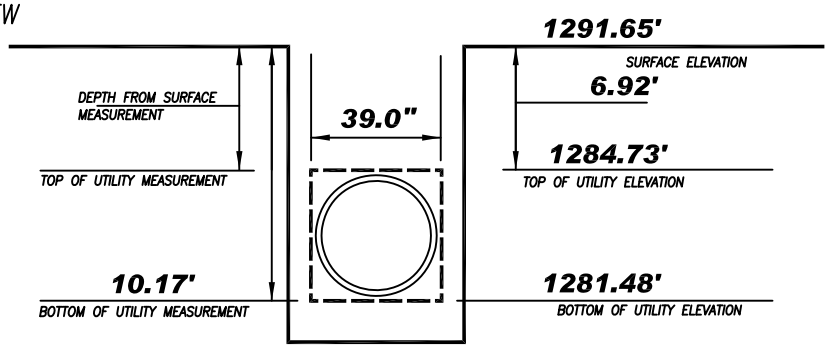
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 81+02 10 RT
SURVEYED STATION/OFFSET: **81+01.80 10.40' RT.**
REQUESTED NORTHING: **848023** EASTING: **759806**
SURVEYED NORTHING: **848022.98** EASTING: **759806.77**
ELEVATION OF FINISH SURFACE: **1291.65'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.92'**
ELEVATION OF TOP OF FACILITY: **1284.73'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.65'** SOIL TYPE: **GW**
O.D./TYPE: **39.0" WATER PIPE / RC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

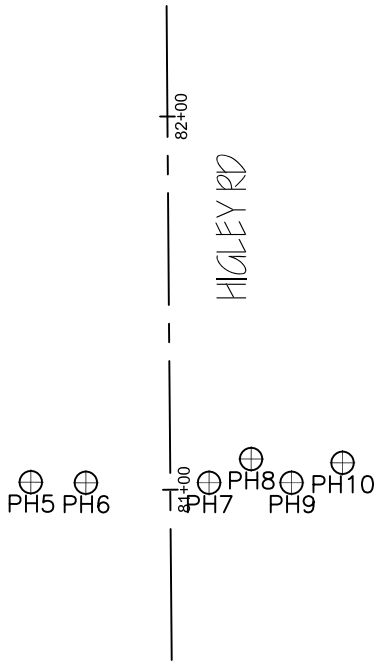
Expires: 09/30/2014

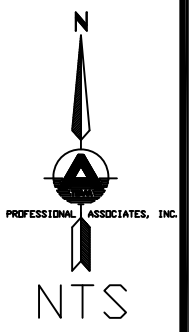
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 7

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **8**
CLIENT HOLE NO.: **8**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: [ ]USER DEFINED [X]NAD83 [X]NAVD88 [ ]NGVD29
[ ]GRID [X]GROUND

PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

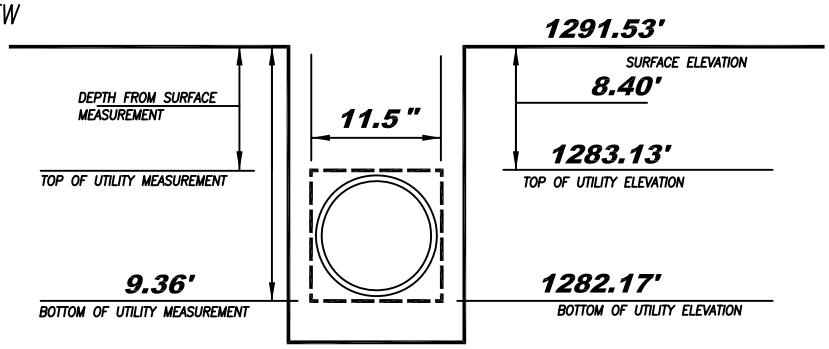
B.M.: [X]GIVEN [ ]ASSUMED [X]SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 81+02 22 RT
SURVEYED STATION/OFFSET: **81+01.58 16.34' RT.**
REQUESTED NORTHING: **848023** EASTING: **759818**
SURVEYED NORTHING: **848022.81** EASTING: **759812.71**
ELEVATION OF FINISH SURFACE: **1291.53'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **8.40'**
ELEVATION OF TOP OF FACILITY: **1283.13'**
WAS REQUESTED UTILITY FOUND? [X]YES [ ]NO
PAVING THICKNESS AND TYPE : **AC 0.80'** SOIL TYPE: **GM**
O.D./TYPE: **11.5" FM PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed
ARIZONA, U.S.A.

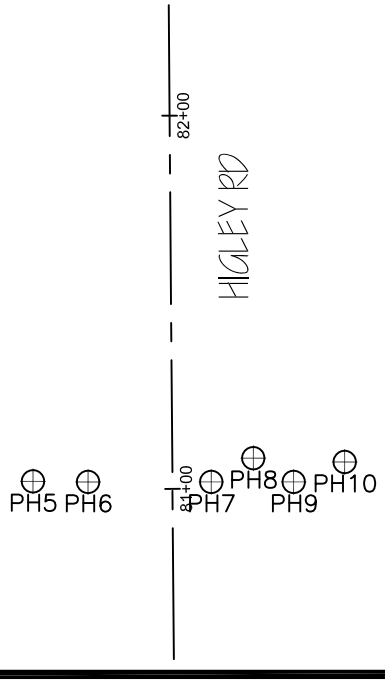
Expires: 09/30/2014

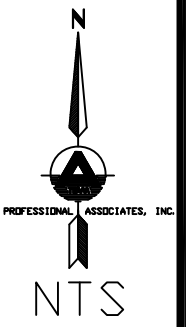
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 8

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **9**
CLIENT HOLE NO.: **9**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

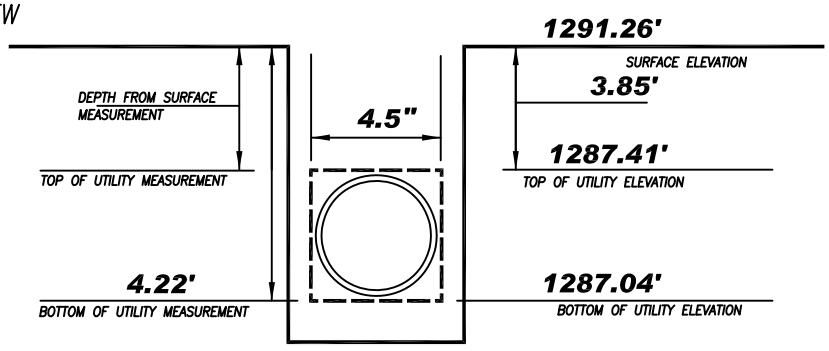
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 81+02 27 RT
SURVEYED STATION/OFFSET: **81+01.69 24.28' RT.**
REQUESTED NORTHING: **848023** EASTING: **759823**
SURVEYED NORTHING: **848022.98** EASTING: **759820.64**
ELEVATION OF FINISH SURFACE: **1291.26'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.85'**
ELEVATION OF TOP OF FACILITY: **1287.41'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.15'** SOIL TYPE: **GM**
O.D./TYPE: **4.5" TELEPHONE PIPE / PVC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 10/24/13
ARIZONA, U.S.A.

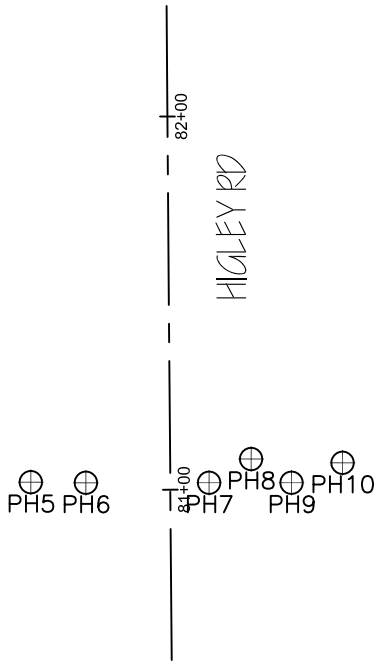
Expires: 09/30/2014

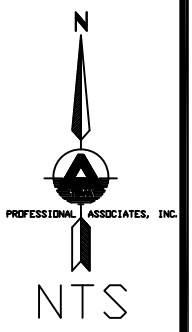
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 9

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE





1920 W. Peoria Ave.
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A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **10**
CLIENT HOLE NO.: **10**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of 202 on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

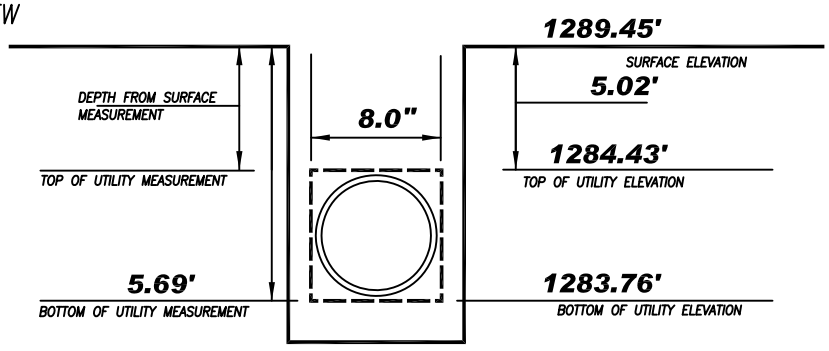
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 81+02 36 RT
SURVEYED STATION/OFFSET: **81+01.30 38.86' RT.**
REQUESTED NORTHING: **848023** EASTING: **759832**
SURVEYED NORTHING: **848022.70** EASTING: **759835.23**
ELEVATION OF FINISH SURFACE: **1289.45'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.02'**
ELEVATION OF TOP OF FACILITY: **1284.43'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **8.0" CABLE TV DUCT / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 10/24/13
ARIZONA, U.S.A.

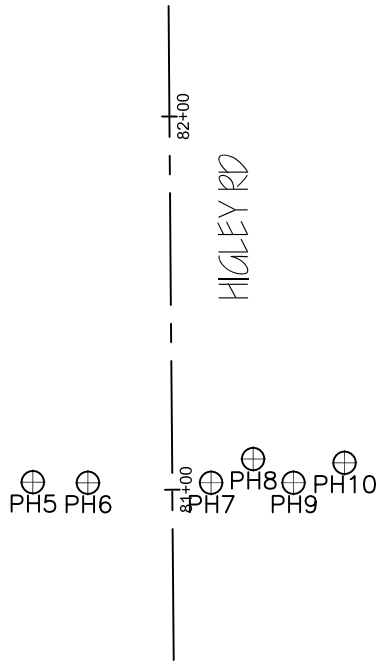
Expires: 09/30/2014

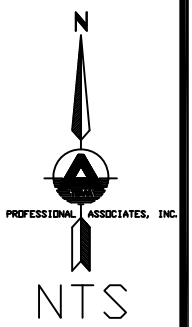
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 10

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **11**
CLIENT HOLE NO.: **11**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **S. of Stottler on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

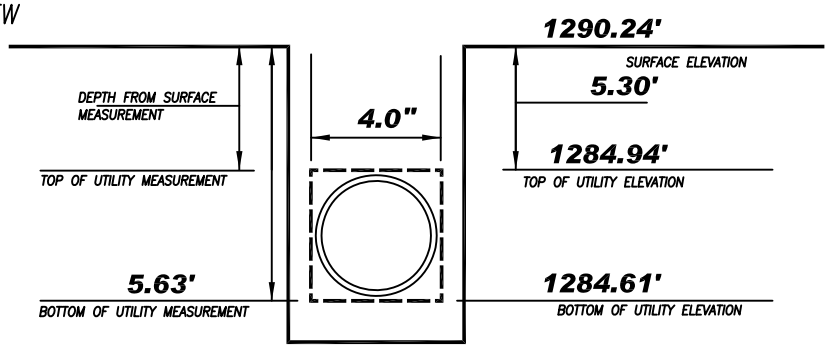
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 86+90 31 LT
SURVEYED STATION/OFFSET: **86+90.17 27.74' LT.**
REQUESTED NORTHING: **848611** EASTING: **759761**
SURVEYED NORTHING: **848611.05** EASTING: **759764.06**
ELEVATION OF FINISH SURFACE: **1290.24'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.30'**
ELEVATION OF TOP OF FACILITY: **1284.94'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **4.0" ELECTRICAL PIPE / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

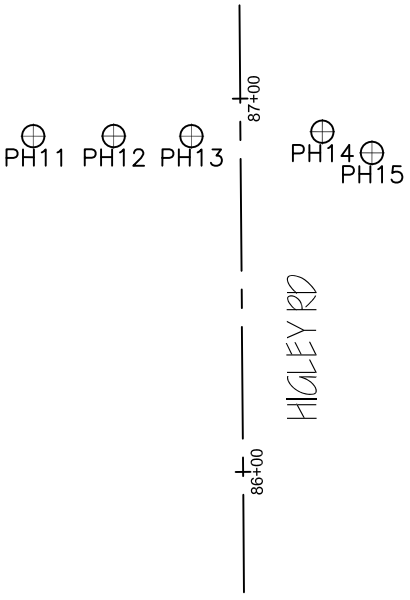
Expires: 09/30/2014

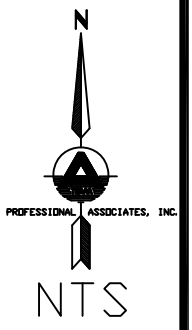
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 11

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **12**
CLIENT HOLE NO.: **12**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **S. of Stottler on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

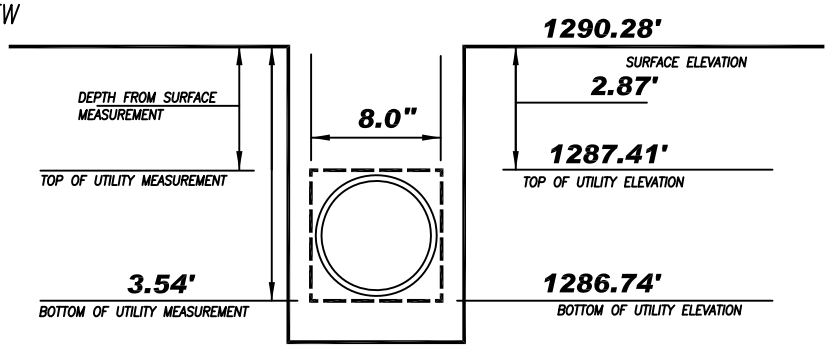
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 86+90 28 LT
SURVEYED STATION/OFFSET: **86+90.20 26.82' LT.**
REQUESTED NORTHING: **848611** EASTING: **759764**
SURVEYED NORTHING: **848611.08** EASTING: **759764.98**
ELEVATION OF FINISH SURFACE: **1290.28'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **2.87'**
ELEVATION OF TOP OF FACILITY: **1287.41'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **8.0" TELEPHONE DUCT / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

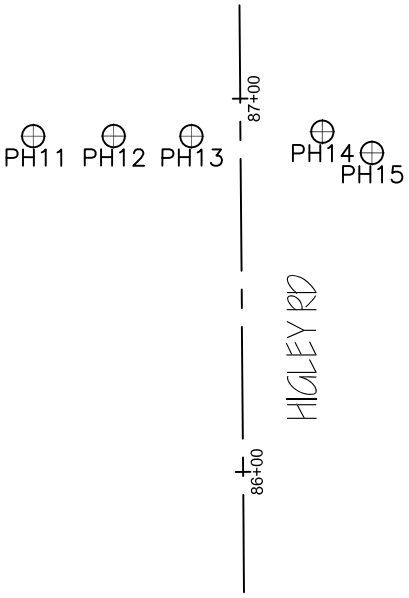
Expires: 09/30/2014

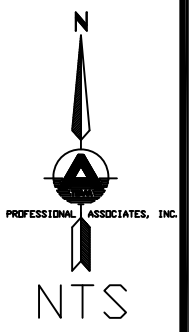
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 12

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **13**
CLIENT HOLE NO.: **13**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **S. of Stottler on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

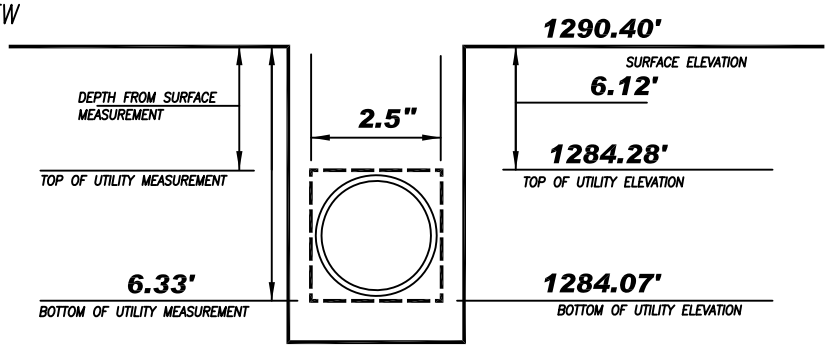
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 86+90 27 LT
SURVEYED STATION/OFFSET: **86+90.16 24.36' LT.**
REQUESTED NORTHING: **848611** EASTING: **759765**
SURVEYED NORTHING: **848611.06** EASTING: **759767.44**
ELEVATION OF FINISH SURFACE: **1290.40'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.12'**
ELEVATION OF TOP OF FACILITY: **1284.28'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **2.5" GAS/PETRO/LP PIPE / STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 10/24/13
ARIZONA, U.S.A.

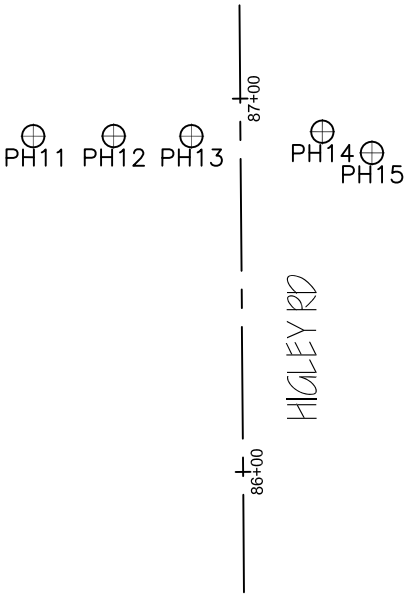
Expires: 09/30/2014

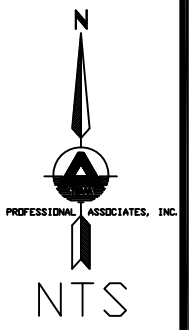
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 13

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





NTS

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Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **14**
CLIENT HOLE NO.: **14**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **S. of Stottler on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

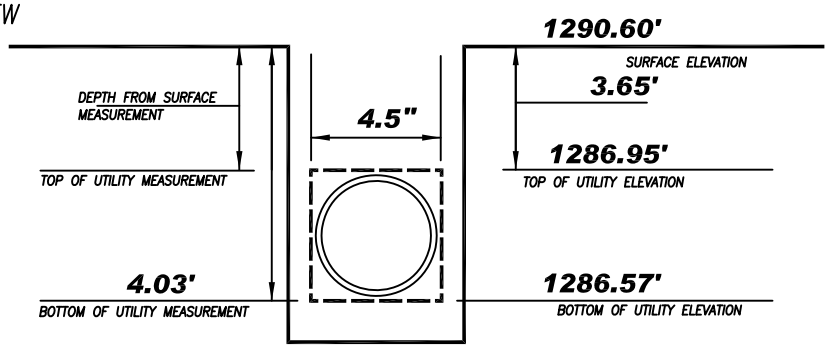
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 86+90 27 RT
SURVEYED STATION/OFFSET: **86+90.98 21.94' RT.**
REQUESTED NORTHING: **848611** EASTING: **759819**
SURVEYED NORTHING: **848612.23** EASTING: **759813.74**
ELEVATION OF FINISH SURFACE: **1290.60'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.65'**
ELEVATION OF TOP OF FACILITY: **1286.95'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **4.5" TELEPHONE DUCT / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

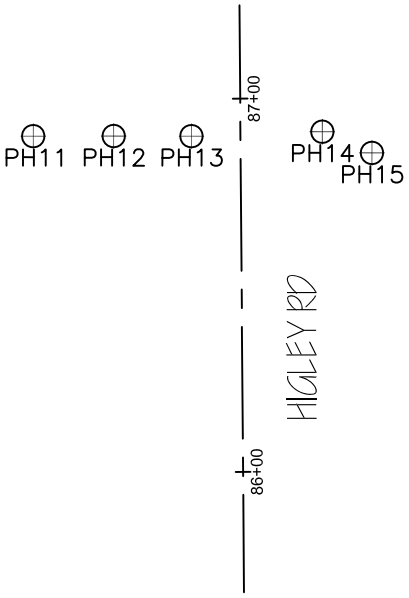
Expires: 09/30/2014

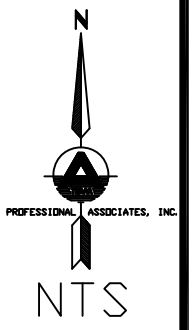
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 14

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **15**
CLIENT HOLE NO.: **15**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **S. of Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

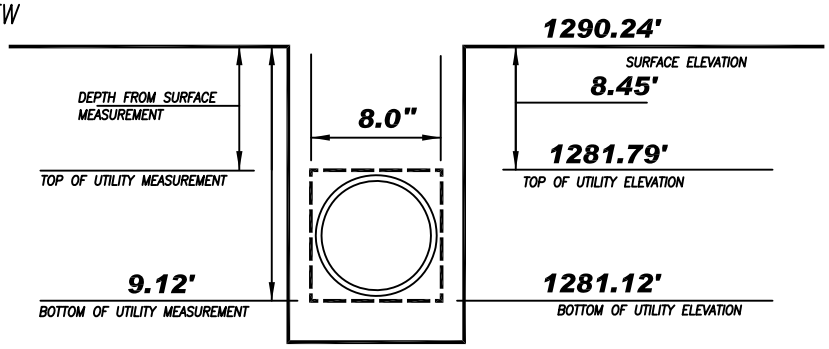
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 86+90 31 RT
SURVEYED STATION/OFFSET: **86+89.62 29.05' RT.**
REQUESTED NORTHING: **848611** EASTING: **759822**
SURVEYED NORTHING: **848610.94** EASTING: **759820.86**
ELEVATION OF FINISH SURFACE: **1290.24'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **8.45'**
ELEVATION OF TOP OF FACILITY: **1281.79'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **8.0" CABLE TV DUCT / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

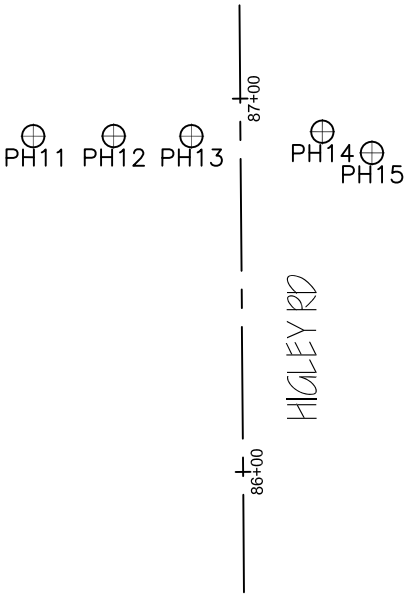
Expires: 09/30/2014

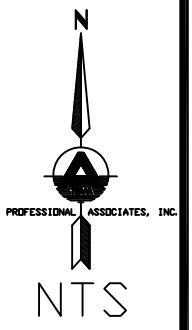
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 15

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **16**
CLIENT HOLE NO.: **16**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

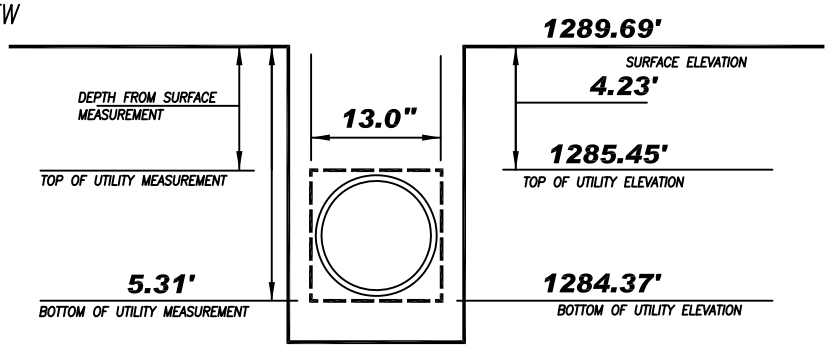
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 88+35 49 LT
SURVEYED STATION/OFFSET: **88+35.40 49.39' LT.**
REQUESTED NORTHING: **878756** EASTING: **759742**
SURVEYED NORTHING: **848756.10** EASTING: **759741.29**
ELEVATION OF FINISH SURFACE: **1289.69'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.23'**
ELEVATION OF TOP OF FACILITY: **1285.45'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 40.00'** SOIL TYPE: **GM**
O.D./TYPE: **13.0" WATER PIPE / PVC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

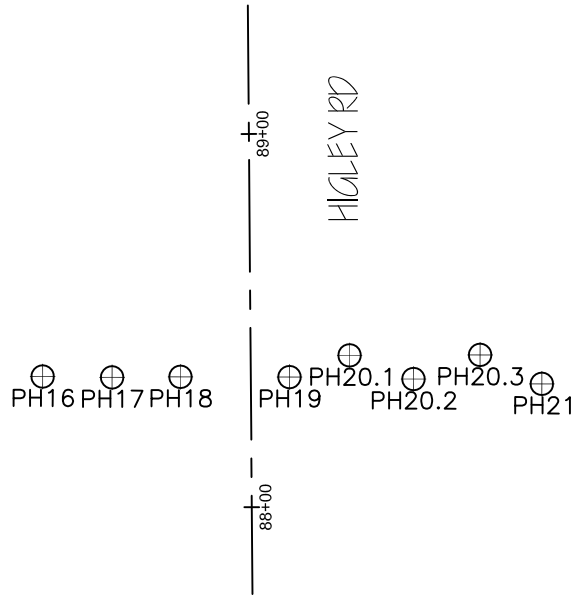
Expires: 09/30/2014

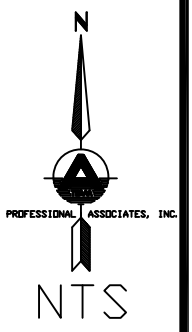
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 16

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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Phoenix, Arizona 85029
Phone: 602.906.0020
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A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **17**
CLIENT HOLE NO.: **17**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

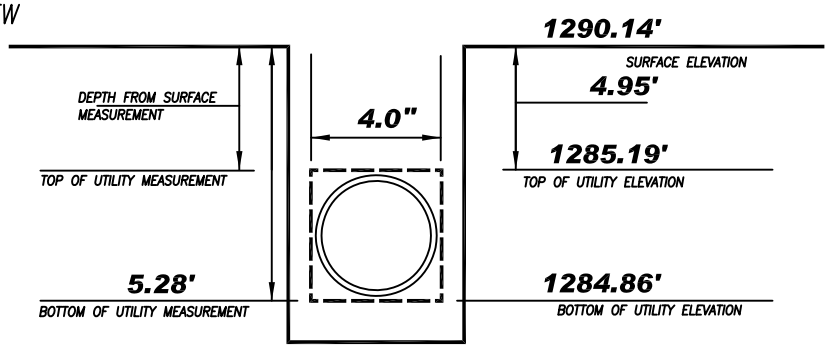
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 88+35 31 LT
SURVEYED STATION/OFFSET: **88+35.00 28.24' LT.**
REQUESTED NORTHING: **848756** EASTING: **759760**
SURVEYED NORTHING: **848755.87** EASTING: **759762.44**
ELEVATION OF FINISH SURFACE: **1290.14'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.95'**
ELEVATION OF TOP OF FACILITY: **1285.19'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AB 0.45'** SOIL TYPE: **GM**
O.D./TYPE: **4.0" ELECTRICAL PIPE / PVC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

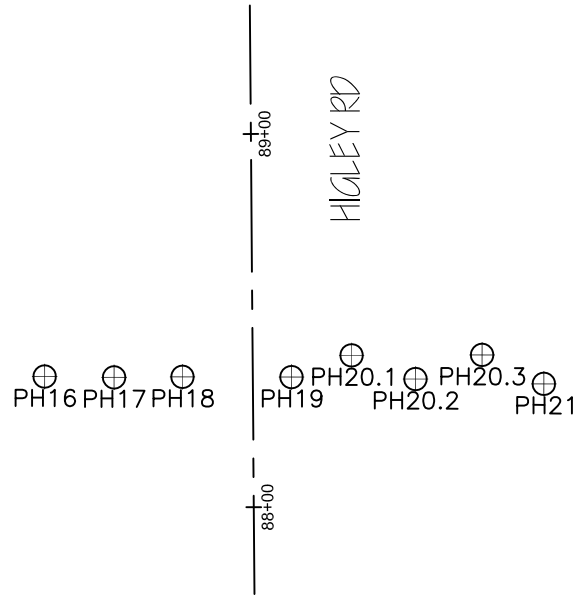
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 17

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **18**
CLIENT HOLE NO.: **18**
DATE DUG: 10/18/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

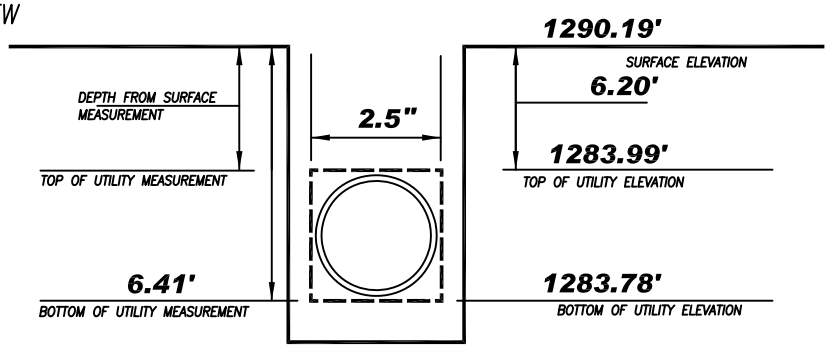
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 88+35 27 LT
SURVEYED STATION/OFFSET: **88+35.13 26.77' LT.**
REQUESTED NORTHING: **848756** EASTING: **759764**
SURVEYED NORTHING: **848756.01** EASTING: **759763.91**
ELEVATION OF FINISH SURFACE: **1290.19'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.20'**
ELEVATION OF TOP OF FACILITY: **1283.99'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AB 0.45'**
SOIL TYPE: **GW**
O.D./TYPE: **2.5" GAS/PETRO/LP PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

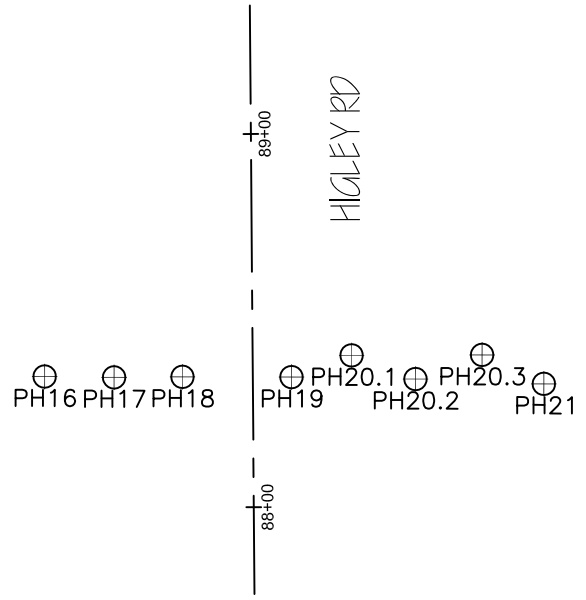
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 18

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **19**
CLIENT HOLE NO.: **19**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

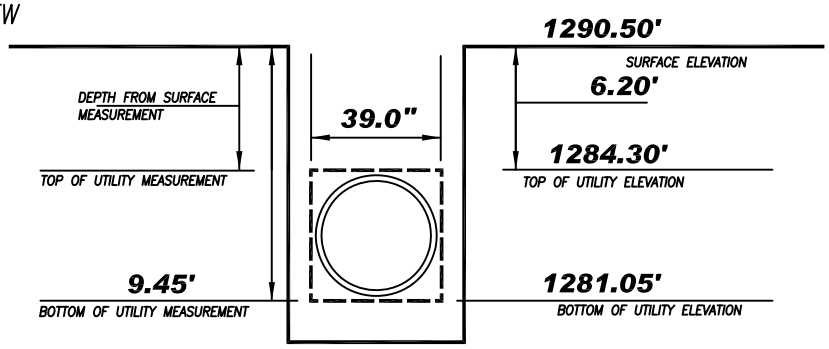
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 88+35 10 RT
SURVEYED STATION/OFFSET: **88+34.79 10.37' RT.**
REQUESTED NORTHING: **848756** EASTING: **759801**
SURVEYED NORTHING: **848755.95** EASTING: **759801.05**
ELEVATION OF FINISH SURFACE: **1290.50'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.20'**
ELEVATION OF TOP OF FACILITY: **1284.30'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.25'** SOIL TYPE: **GM**
O.D./TYPE: **39.0" WATER PIPE / RC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

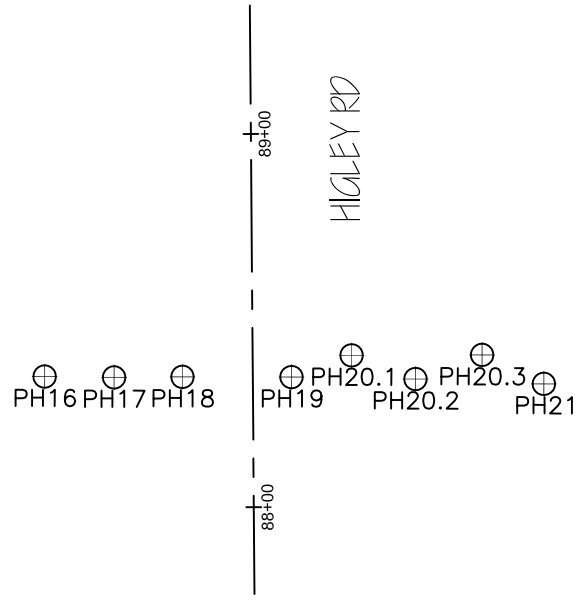
Expires: 09/30/2014

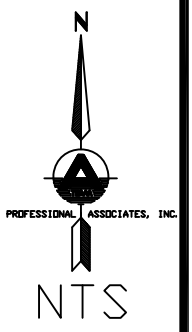
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 19

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





1920 W. Peoria Ave.
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Phone: 602.906.0020
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A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **20.1**
CLIENT HOLE NO.: **20.1**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

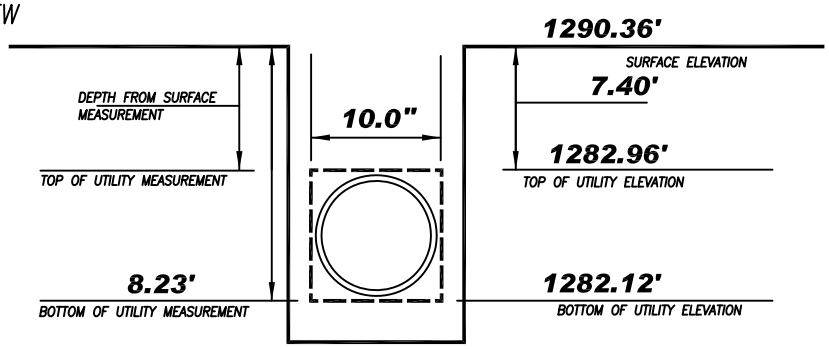
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 88+35 22 RT
SURVEYED STATION/OFFSET: **88+34.75 17.47' RT.**
REQUESTED NORTHING: **848756** EASTING: **759813**
SURVEYED NORTHING: **848755.97** EASTING: **759808.15**
ELEVATION OF FINISH SURFACE: **1290.36'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **7.40'**
ELEVATION OF TOP OF FACILITY: **1282.96'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.20'** SOIL TYPE: **GM**
O.D./TYPE: **10.0" SANITARY SEWER PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

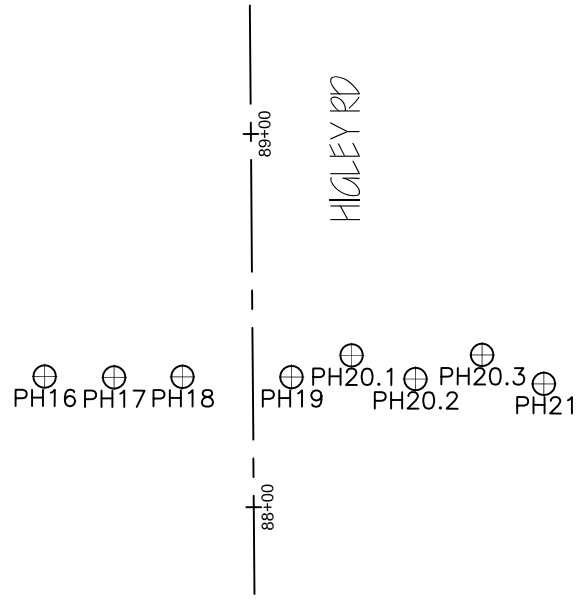
Expires: 09/30/2014

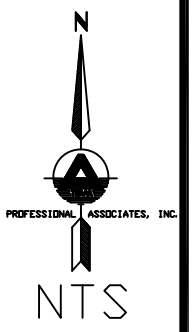
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 20.1

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **20.2**
CLIENT HOLE NO.: **20.2**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

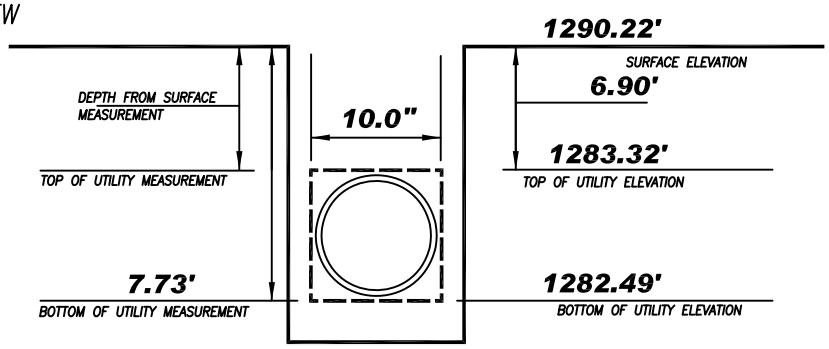
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET:
SURVEYED STATION/OFFSET: **88+34.74 19.81' RT.**
REQUESTED NORTHING: EASTING:
SURVEYED NORTHING: **848755.98** EASTING: **759810.49**
ELEVATION OF FINISH SURFACE: **1290.22'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.90'**
ELEVATION OF TOP OF FACILITY: **1283.32'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **10.0" FM PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

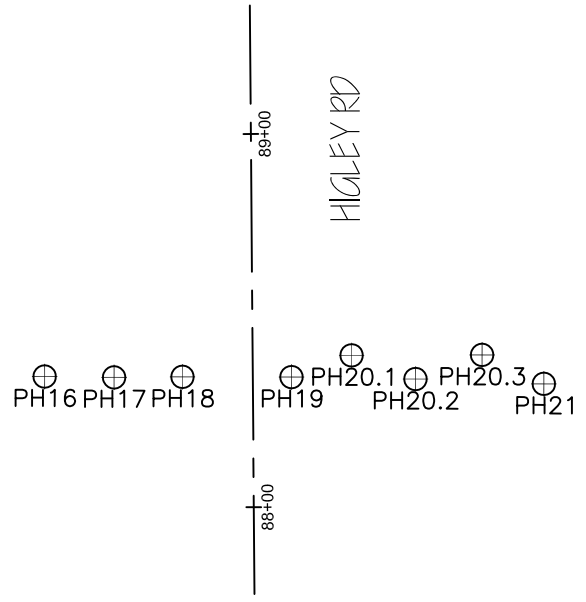
Expires: 09/30/2014

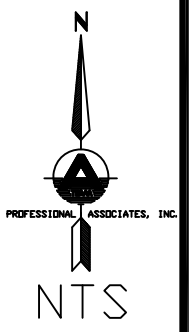
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 20.2

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **20.3**
CLIENT HOLE NO.: **20.3**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

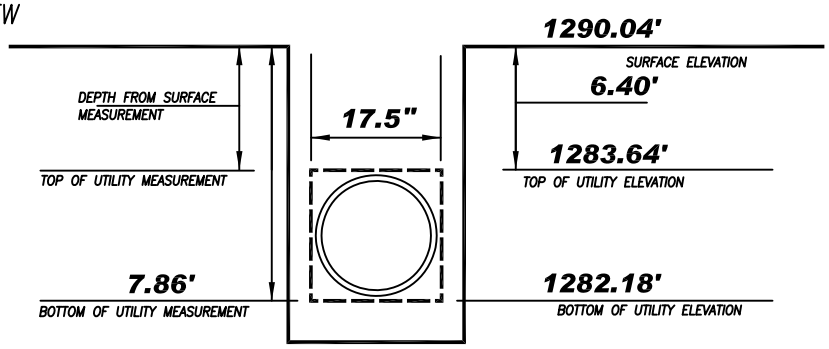
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET:
SURVEYED STATION/OFFSET: **88+34.74 22.01' RT.**
REQUESTED NORTHING: EASTING:
SURVEYED NORTHING: **848755.99** EASTING: **759812.69**
ELEVATION OF FINISH SURFACE: **1290.04'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.40'**
ELEVATION OF TOP OF FACILITY: **1283.64'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **17.5" SANITARY SEWER PIPE / STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

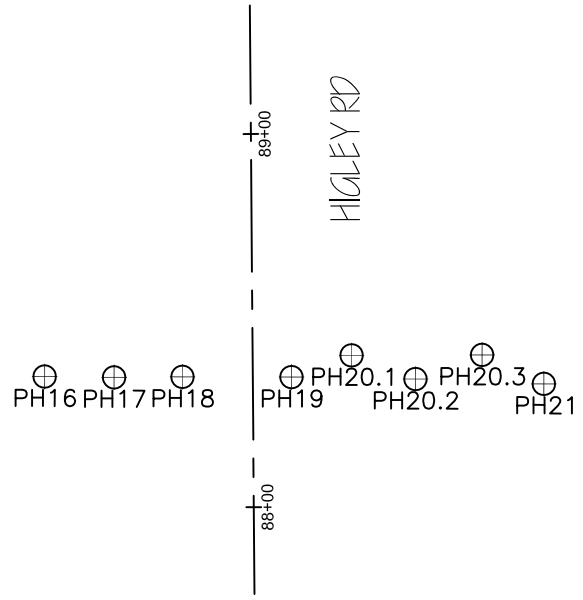
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 20.3

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
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Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **21**
CLIENT HOLE NO.: **21**
DATE DUG: 10/19/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Stottler & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

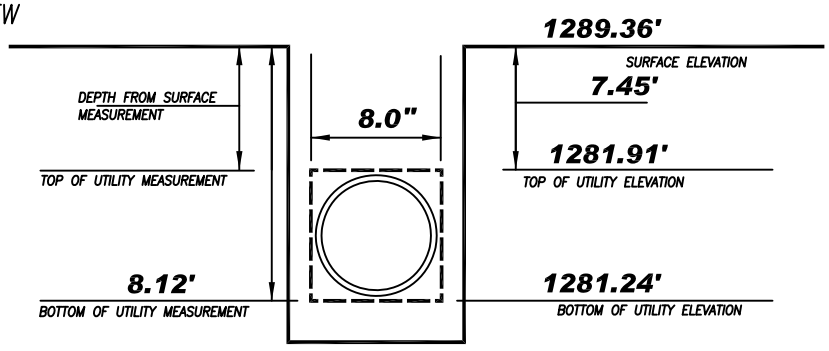
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 88+35 31 RT
SURVEYED STATION/OFFSET: **88+33.36 30.04' RT.**
REQUESTED NORTHING: **848756** EASTING: **759821**
SURVEYED NORTHING: **848754.68** EASTING: **759820.74**
ELEVATION OF FINISH SURFACE: **1289.36'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **7.45'**
ELEVATION OF TOP OF FACILITY: **1281.91'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **8.0" CABLE TV DUCT / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

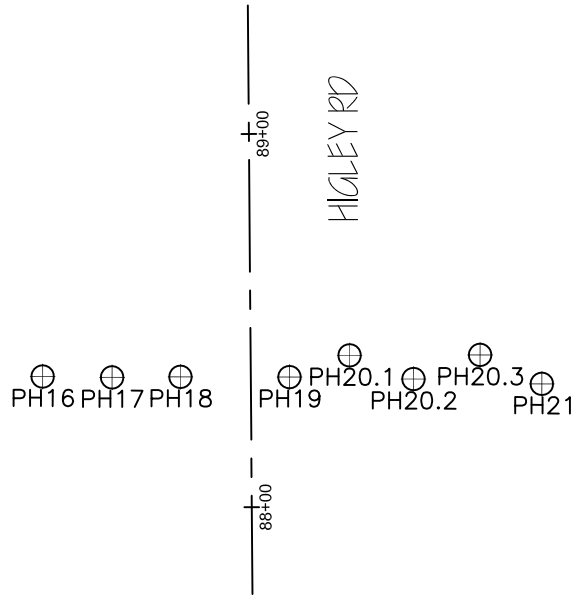
Expires: 09/30/2014

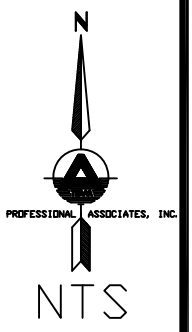
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 21

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **22**
CLIENT HOLE NO.: **22**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION:
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 92+82 30 RT
SURVEYED STATION/OFFSET: **NOT FOUND**
REQUESTED NORTHING: **849203** EASTING: **759817**
SURVEYED NORTHING: **N/A** EASTING: **N/A**
ELEVATION OF FINISH SURFACE: **N/A**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **N/A**
ELEVATION OF TOP OF FACILITY: **N/A**
WAS REQUESTED UTILITY FOUND? ☐YES ☒NO
PAVING THICKNESS AND TYPE :
O.D./TYPE: **" TELEPHONE**
MARKER TYPE: **SEE COMMENTS**

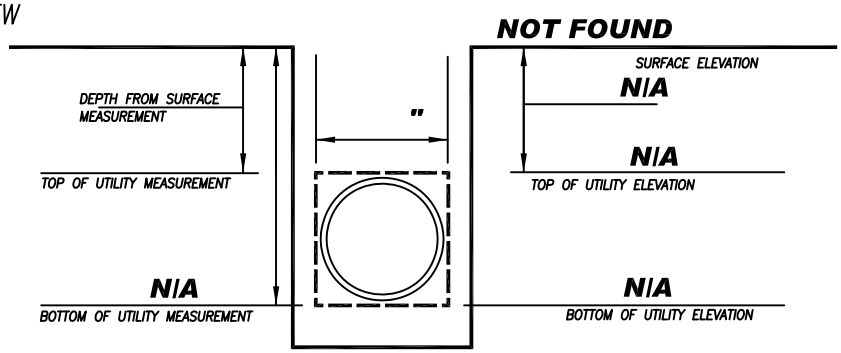
SOIL TYPE: **O**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/2013
ARIZONA, U.S.A.

Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 22

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE

Met with ELM and there are no telephone lines in this area per Blue Stake maps.

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Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **23**
CLIENT HOLE NO.: **23**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Warner & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

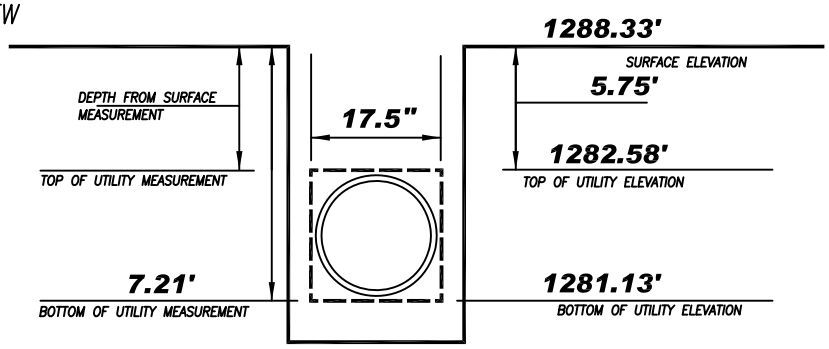
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 101+60 50 RT
SURVEYED STATION/OFFSET: **101+63.43 50.25' RT.**
REQUESTED NORTHING: **850082** EASTING: **759830**
SURVEYED NORTHING: **850084.89** EASTING: **759830.52**
ELEVATION OF FINISH SURFACE: **1288.33'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.75'**
ELEVATION OF TOP OF FACILITY: **1282.58'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **17.5" RW** **PIPE** **/ STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

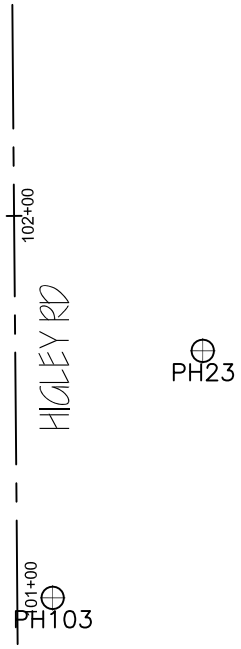
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 23

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



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Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **24**
CLIENT HOLE NO.: **24**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of Warner on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

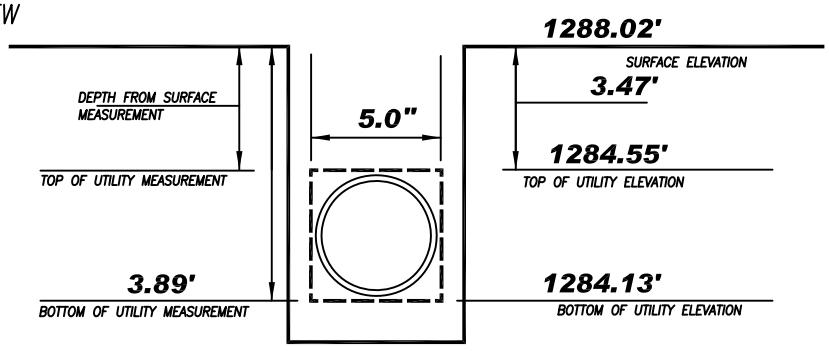
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 106+35 20 LT
SURVEYED STATION/OFFSET: **106+34.86 30.34' LT.**
REQUESTED NORTHING: **850556** EASTING: **759756**
SURVEYED NORTHING: **850555.63** EASTING: **759745.96**
ELEVATION OF FINISH SURFACE: **1288.02'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.47'**
ELEVATION OF TOP OF FACILITY: **1284.55'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **5.0" GAS/PETRO/LP PIPE / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

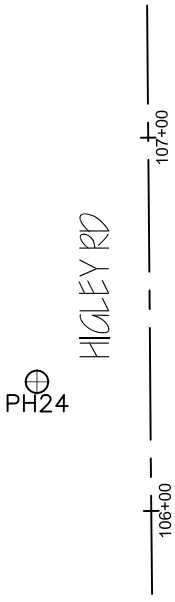
Expires: 09/30/2014

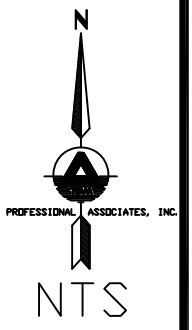
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 24

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





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Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **25**
CLIENT HOLE NO.: **25**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **N. of Warner on Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

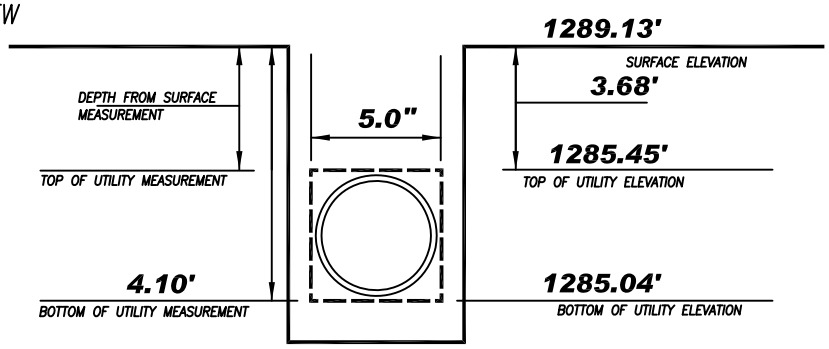
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 110+65 20 LT
SURVEYED STATION/OFFSET: **110+65.58 20.40' LT.**
REQUESTED NORTHING: **850986** EASTING: **759753**
SURVEYED NORTHING: **850986.42** EASTING: **759752.28**
ELEVATION OF FINISH SURFACE: **1289.13'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.68'**
ELEVATION OF TOP OF FACILITY: **1285.45'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **5.0" GAS/PETRO/LP PIPE / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed
ARIZONA, U.S.A.

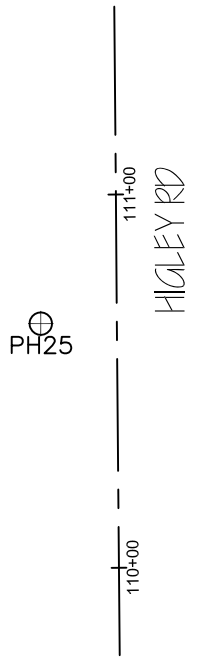
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 25

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



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NTS

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Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **26**
CLIENT HOLE NO.: **26**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **W. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

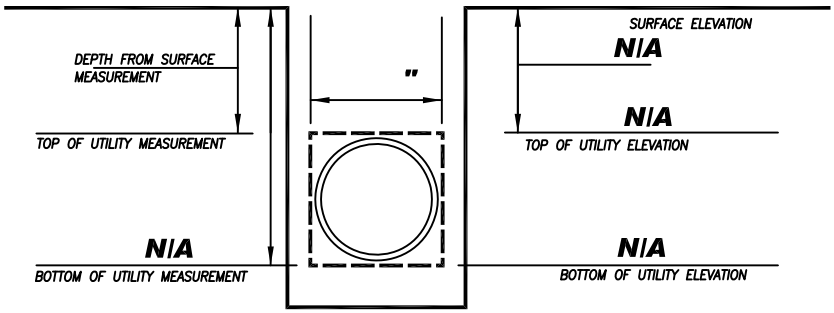
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 30+08 63 RT
SURVEYED STATION/OFFSET: **NOT FOUND**
REQUESTED NORTHING: **849852** EASTING: **759185**
SURVEYED NORTHING: **N/A** EASTING: **N/A**
ELEVATION OF FINISH SURFACE: **N/A**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **N/A**
ELEVATION OF TOP OF FACILITY: **N/A**
WAS REQUESTED UTILITY FOUND? ☐YES ☒NO
PAVING THICKNESS AND TYPE :
O.D./TYPE: **" CABLE TV O**
MARKER TYPE: **SEE COMMENTS**
SOIL TYPE: **CH**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/2013
ARIZONA, U.S.A.

Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 26

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

We excavated to 9' deep on Blue Stake with no utility found

N
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NTS

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Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **27**
CLIENT HOLE NO.: **27**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **W. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

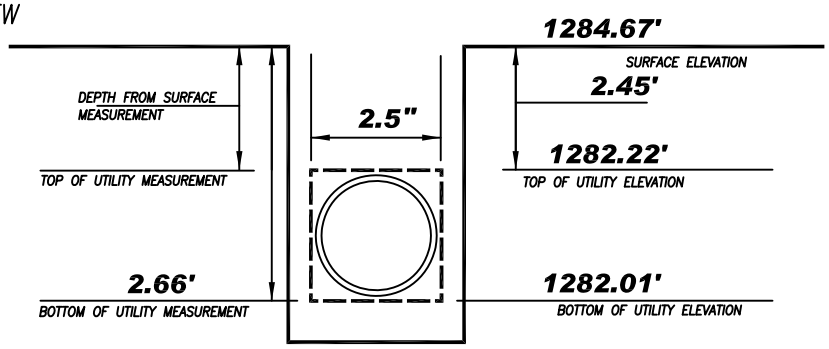
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 30+09 68 RT
SURVEYED STATION/OFFSET: **30+07.36 60.03' RT.**
REQUESTED NORTHING: **849847** EASTING: **759186**
SURVEYED NORTHING: **849854.71** EASTING: **759184.54**
ELEVATION OF FINISH SURFACE: **1284.67'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **2.45'**
ELEVATION OF TOP OF FACILITY: **1282.22'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **2.5" ELECTRICAL PIPE / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

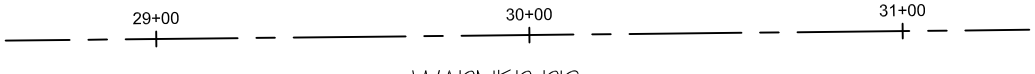
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 27

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

PH27
PH27.1

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **27.1**
CLIENT HOLE NO.: **27.1**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **W. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

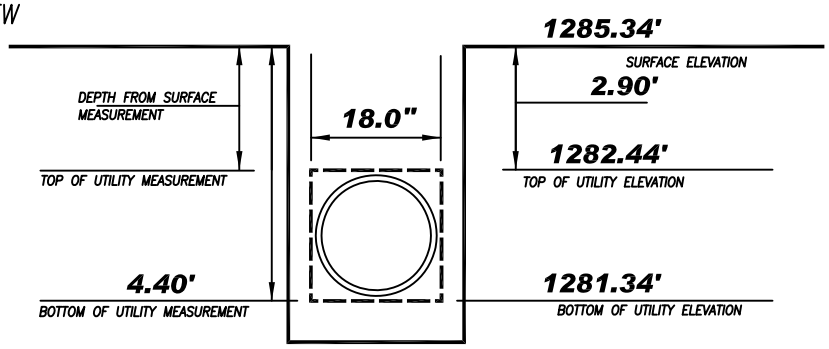
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET:
SURVEYED STATION/OFFSET: **30+08.55 65.66' RT.**
REQUESTED NORTHING: EASTING:
SURVEYED NORTHING: **849849.10** EASTING: **759185.78**
ELEVATION OF FINISH SURFACE: **1285.34'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **2.90'**
ELEVATION OF TOP OF FACILITY: **1282.44'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **18.0" TELEPHONE DUCT / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

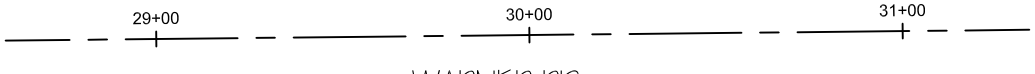
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 27.1

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

PH27
PH27.1

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **28**
CLIENT HOLE NO.: **28**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **W. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

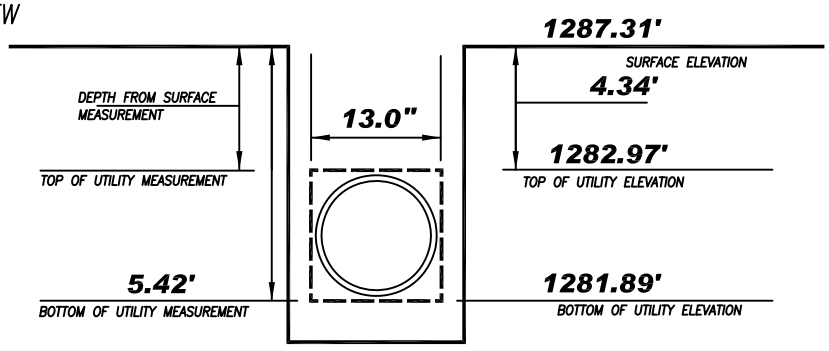
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 32+65 15 LT
SURVEYED STATION/OFFSET: **32+65.45 13.60' LT.**
REQUESTED NORTHING: **849933** EASTING: **759441**
SURVEYED NORTHING: **849931.07** EASTING: **759441.83**
ELEVATION OF FINISH SURFACE: **1287.31'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.34'**
ELEVATION OF TOP OF FACILITY: **1282.97'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR**
SOIL TYPE: **GW**
O.D./TYPE: **13.0" WATER PIPE / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

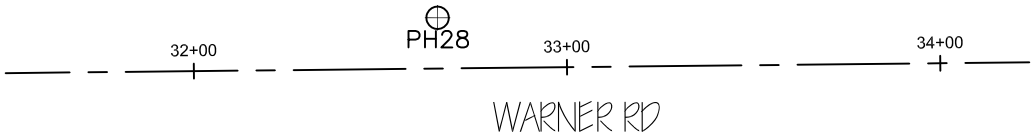
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 28

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

PH29

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **29**
CLIENT HOLE NO.: **29**
DATE DUG: 10/24/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **W. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

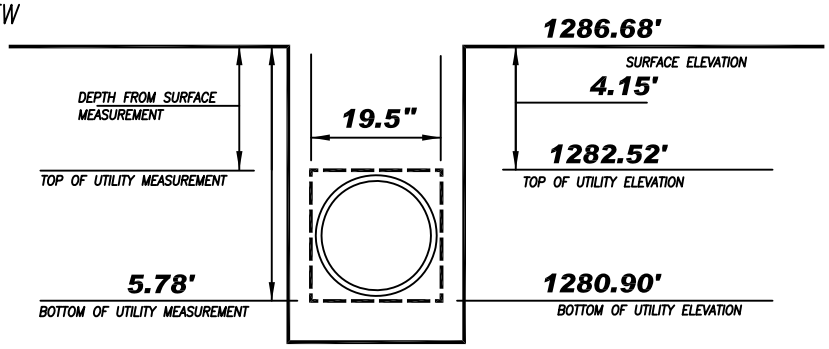
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 33+00 54 RT
SURVEYED STATION/OFFSET: **32+98.60 53.74' RT.**
REQUESTED NORTHING: **849864** EASTING: **759477**
SURVEYED NORTHING: **849864.08** EASTING: **759475.69**
ELEVATION OF FINISH SURFACE: **1286.68'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.15'**
ELEVATION OF TOP OF FACILITY: **1282.52'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **19.5" RW** **PIPE** **/ PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

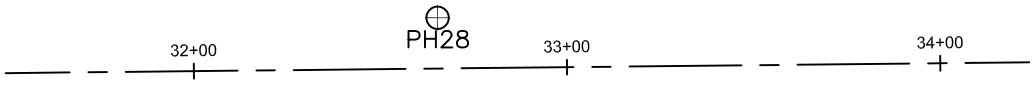
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 29

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



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PROFESSIONAL ASSOCIATES, INC.
NTS

PH29

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **30**
CLIENT HOLE NO.: **30**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **E. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

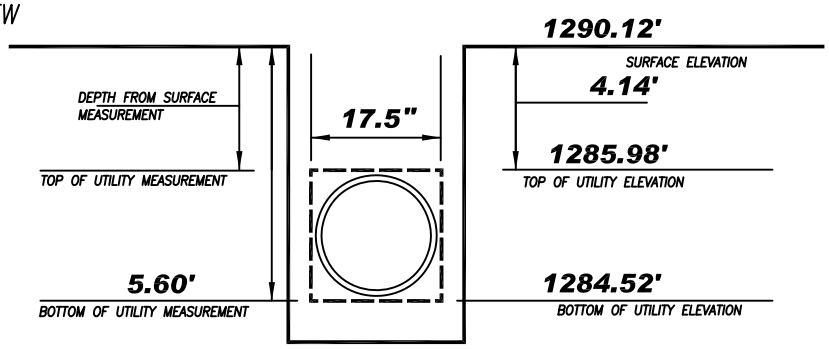
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 41+65 14 LT
SURVEYED STATION/OFFSET: **41+64.33 12.29' LT.**
REQUESTED NORTHING: **849940** EASTING: **760341**
SURVEYED NORTHING: **849938.46** EASTING: **760340.70**
ELEVATION OF FINISH SURFACE: **1290.12'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.14'**
ELEVATION OF TOP OF FACILITY: **1285.98'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **17.5" WATER PIPE / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 10/24/13
ARIZONA, U.S.A.

Expires: 09/30/2014

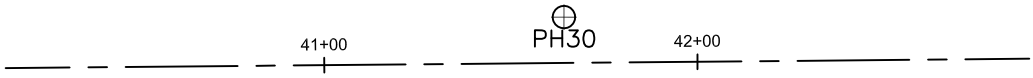
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 30

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



WARNER RD

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **31**
CLIENT HOLE NO.: **31**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **E. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

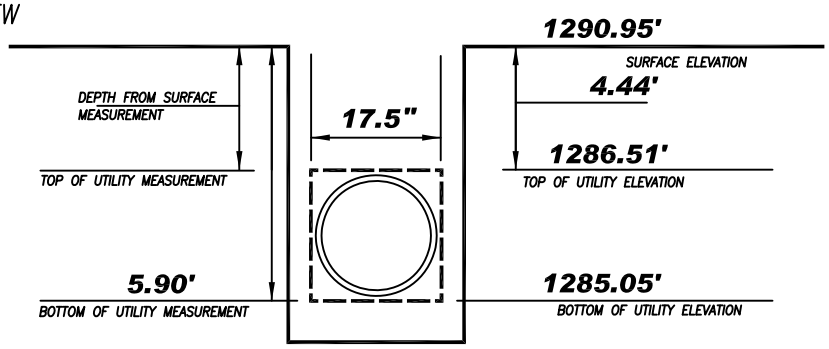
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 44+60 14 LT
SURVEYED STATION/OFFSET: **44+58.99 12.39' LT.**
REQUESTED NORTHING: **849943** EASTING: **760636**
SURVEYED NORTHING: **849941.25** EASTING: **760635.35**
ELEVATION OF FINISH SURFACE: **1290.95'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.44'**
ELEVATION OF TOP OF FACILITY: **1286.51'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **17.5" WATER PIPE / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 10/24/13
ARIZONA, U.S.A.

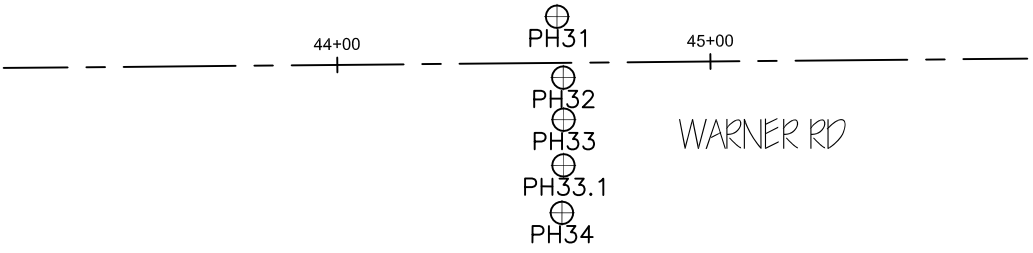
Expires: 09/30/2014

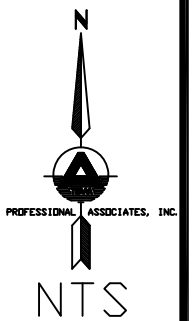
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 31

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **32**
CLIENT HOLE NO.: **32**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **E. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

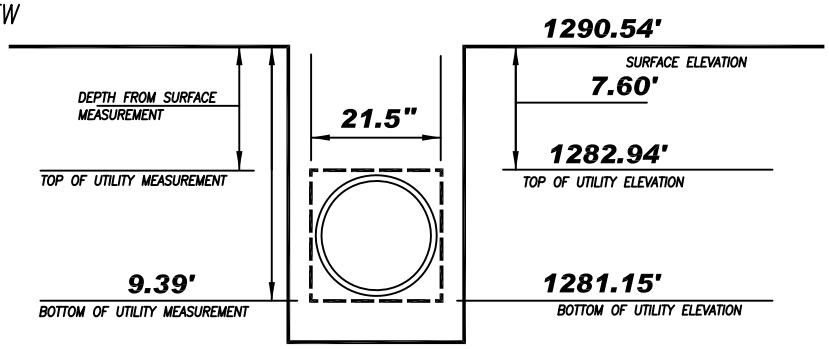
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 44+60 5 RT
SURVEYED STATION/OFFSET: **44+60.51 3.96' RT.**
REQUESTED NORTHING: **849924** EASTING: **760637**
SURVEYED NORTHING: **849924.93** EASTING: **760637.02**
ELEVATION OF FINISH SURFACE: **1290.54'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **7.60'**
ELEVATION OF TOP OF FACILITY: **1282.94'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.40'** SOIL TYPE: **GM**
O.D./TYPE: **21.5" RW PIPE / PVC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

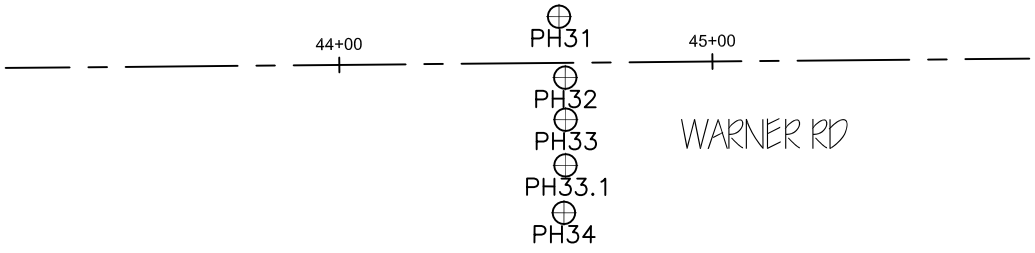
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 32

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **33**
CLIENT HOLE NO.: **33**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **E. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

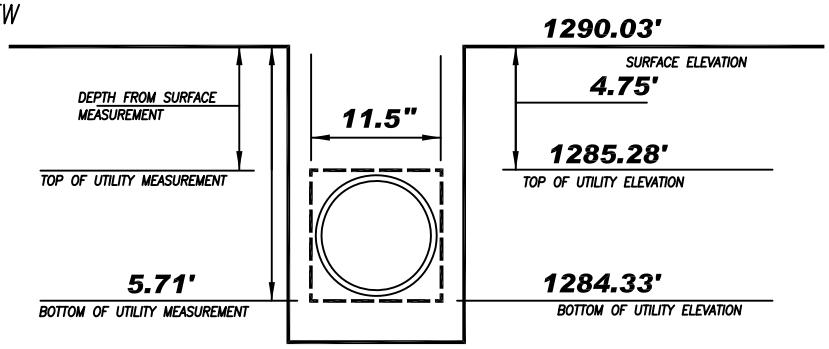
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 44+60 14 RT
SURVEYED STATION/OFFSET: **44+60.51 15.23' RT.**
REQUESTED NORTHING: **849915** EASTING: **760637**
SURVEYED NORTHING: **849913.65** EASTING: **760637.12**
ELEVATION OF FINISH SURFACE: **1290.03'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.75'**
ELEVATION OF TOP OF FACILITY: **1285.28'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **11.5" FM PIPE / STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

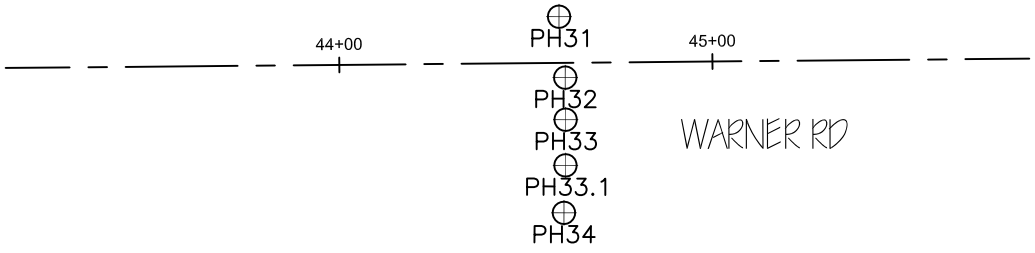
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 33

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **33.1**
CLIENT HOLE NO.: **33.1**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **E. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

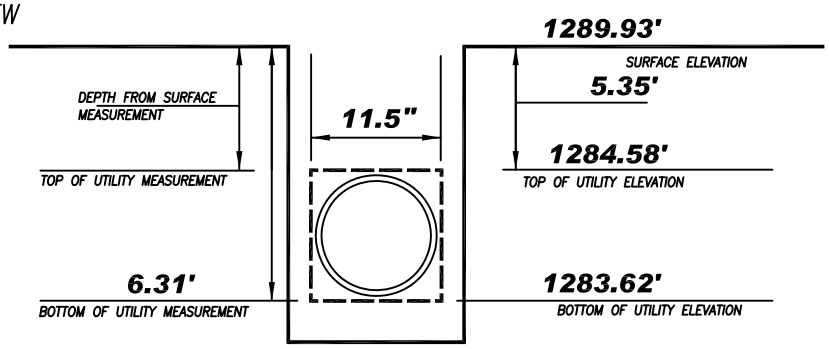
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET:
SURVEYED STATION/OFFSET: **44+60.45 17.40' RT.**
REQUESTED NORTHING: EASTING:
SURVEYED NORTHING: **849911.49** EASTING: **760637.08**
ELEVATION OF FINISH SURFACE: **1289.93'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.35'**
ELEVATION OF TOP OF FACILITY: **1284.58'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **11.5" FM PIPE / STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

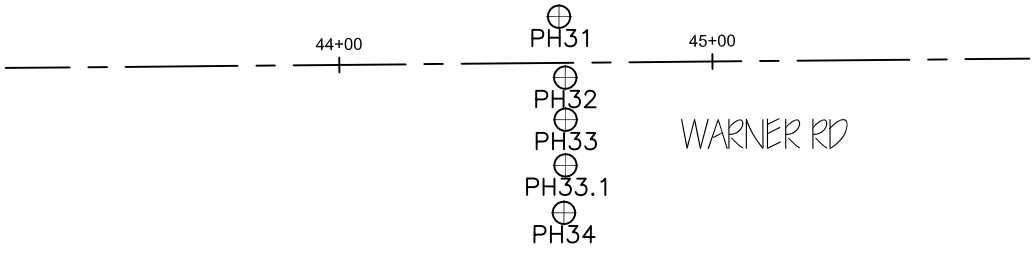
Expires: 09/30/2014

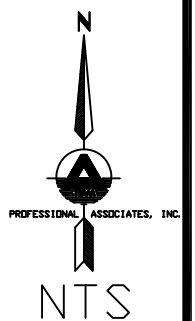
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 33.1

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **34**
CLIENT HOLE NO.: **34**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **E. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

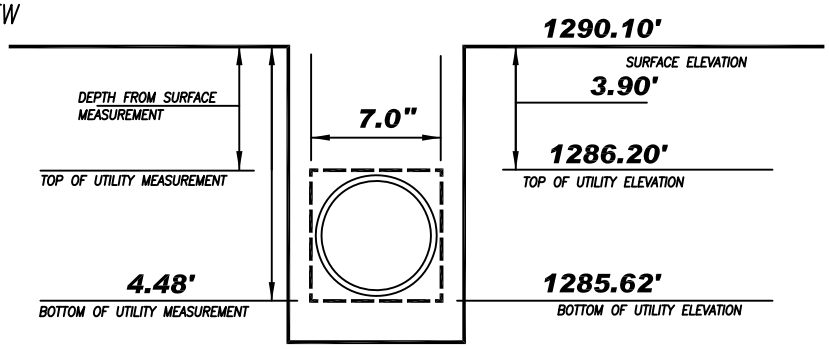
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 44+60 20 RT
SURVEYED STATION/OFFSET: **44+59.95 25.98' RT.**
REQUESTED NORTHING: **849909** EASTING: **760637**
SURVEYED NORTHING: **849902.90** EASTING: **760636.66**
ELEVATION OF FINISH SURFACE: **1290.10'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.90'**
ELEVATION OF TOP OF FACILITY: **1286.20'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **SL**
O.D./TYPE: **7.0" GAS/PETRO/LP PIPE / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

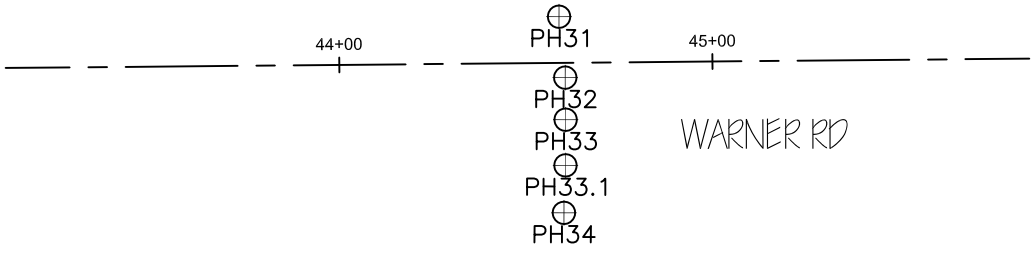
Expires: 09/30/2014

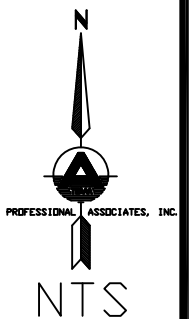
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 34

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110.4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **35**
CLIENT HOLE NO.: **35**
DATE DUG:
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION:
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 44+60 25 RT
SURVEYED STATION/OFFSET: **NOT FOUND**
REQUESTED NORTHING: **849904** EASTING: **760636.7**
SURVEYED NORTHING: **N/A** EASTING: **N/A**
ELEVATION OF FINISH SURFACE: **N/A**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **N/A**
ELEVATION OF TOP OF FACILITY: **N/A**
WAS REQUESTED UTILITY FOUND? ☐YES ☒NO
PAVING THICKNESS AND TYPE :
O.D./TYPE: **" TELEPHONE**
MARKER TYPE: **SEE COMMENTS**

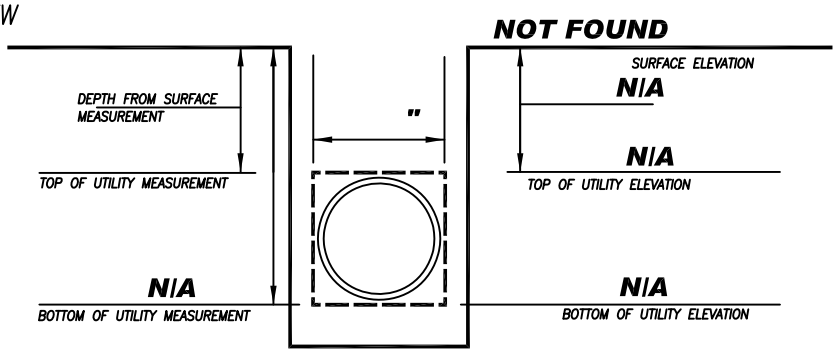
SOIL TYPE:

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/2013
ARIZONA, U.S.A.

Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH
35

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

Met with ELM and was told Telco is on power poles over head.

N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **36**
CLIENT HOLE NO.: **36**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **E. of Higley on Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

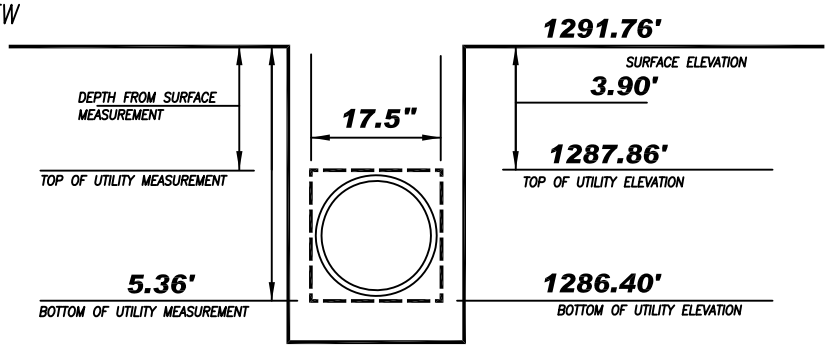
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 47+56 14 LT
SURVEYED STATION/OFFSET: **47+56.68 12.05' LT.**
REQUESTED NORTHING: **849945** EASTING: **760932**
SURVEYED NORTHING: **849943.64** EASTING: **760933.03**
ELEVATION OF FINISH SURFACE: **1291.76'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.90'**
ELEVATION OF TOP OF FACILITY: **1287.86'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **17.5" WATER PIPE / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

Expires: 09/30/2014

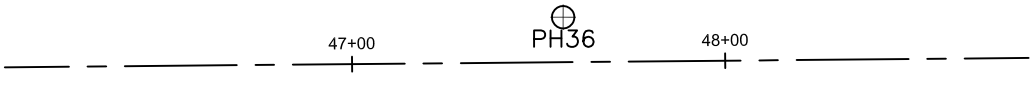
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 36

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



WARNER RD

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110.4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **37**
CLIENT HOLE NO.: **37**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION:
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

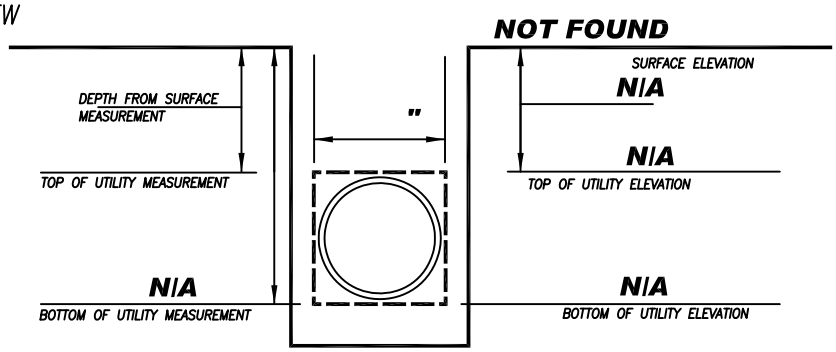
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 49+50 25 RT
SURVEYED STATION/OFFSET: **NOT FOUND**
REQUESTED NORTHING: **849908.5** EASTING: **761126.7**
SURVEYED NORTHING: **N/A** EASTING: **N/A**
ELEVATION OF FINISH SURFACE: **N/A**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **N/A**
ELEVATION OF TOP OF FACILITY: **N/A**
WAS REQUESTED UTILITY FOUND? ☐YES ☒NO
PAVING THICKNESS AND TYPE :
O.D./TYPE: **" TELEPHONE**
MARKER TYPE: **SEE COMMENTS**
SOIL TYPE:

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 37

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

Met with ELM and was told Telco is on power poles over head.

N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **101**
CLIENT HOLE NO.: **101**
DATE DUG: 10/21/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Warner & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

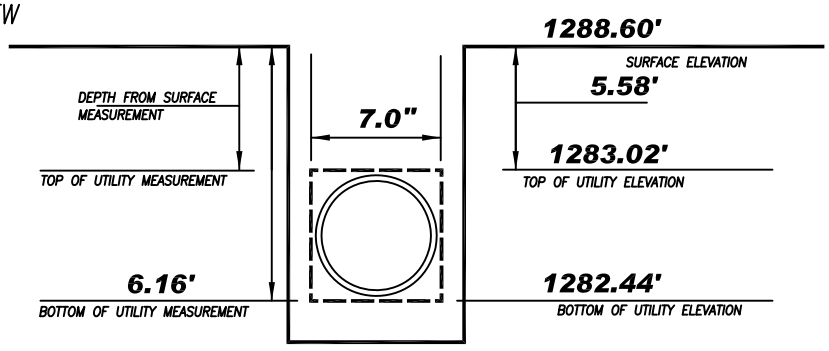
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 35+75.35 98 LT
SURVEYED STATION/OFFSET: **35+76.35 96.37' LT.**
REQUESTED NORTHING: **850018** EASTING: **759751**
SURVEYED NORTHING: **850017.12** EASTING: **759751.84**
ELEVATION OF FINISH SURFACE: **1288.60'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.58'**
ELEVATION OF TOP OF FACILITY: **1283.02'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **7.0" GAS/PETRO/LP PIPE / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

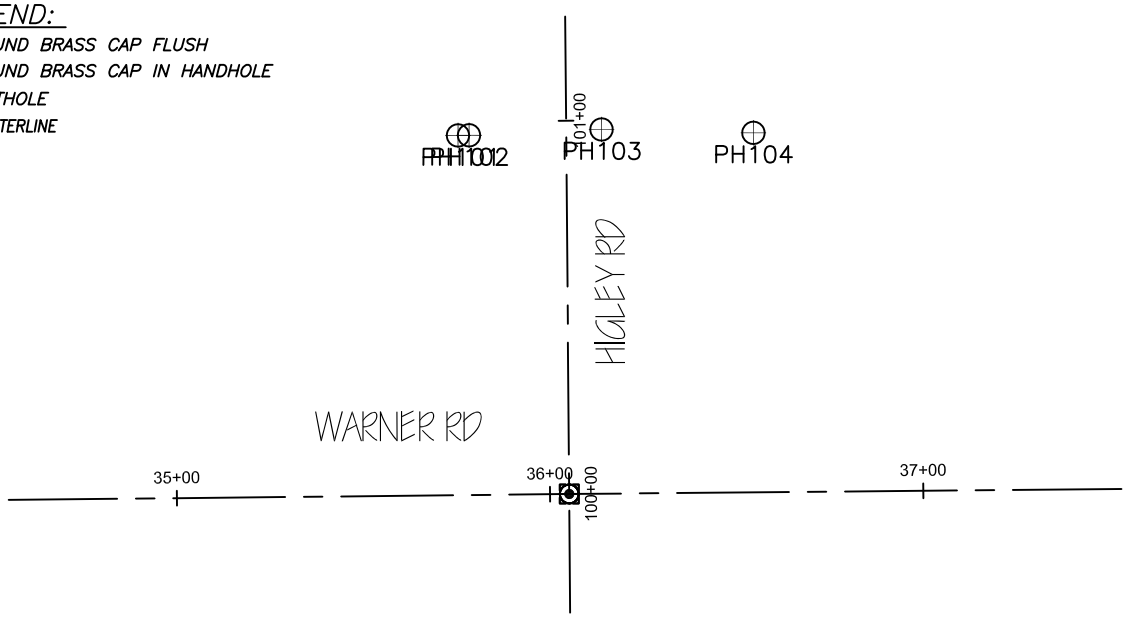
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 101

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **102**
CLIENT HOLE NO.: **102**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Warner & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

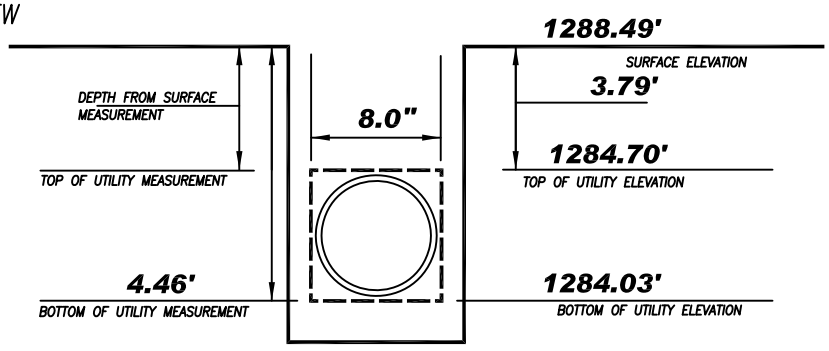
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 35+80.22 98 LT
SURVEYED STATION/OFFSET: **35+79.31 96.39' LT.**
REQUESTED NORTHING: **850018** EASTING: **759756**
SURVEYED NORTHING: **850017.16** EASTING: **759754.80**
ELEVATION OF FINISH SURFACE: **1288.49'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.79'**
ELEVATION OF TOP OF FACILITY: **1284.70'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **8.0" CABLE TV DUCT / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

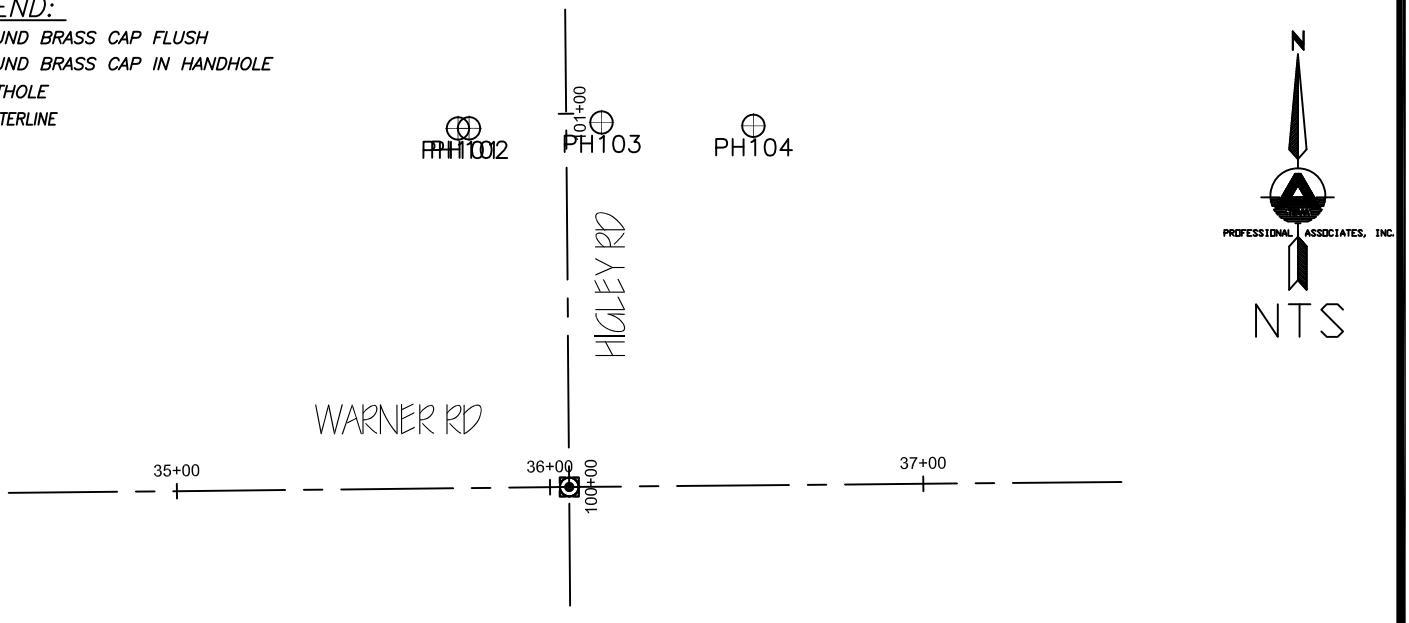
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 102

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **103**
CLIENT HOLE NO.: **103**
DATE DUG: 10/23/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Warner & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

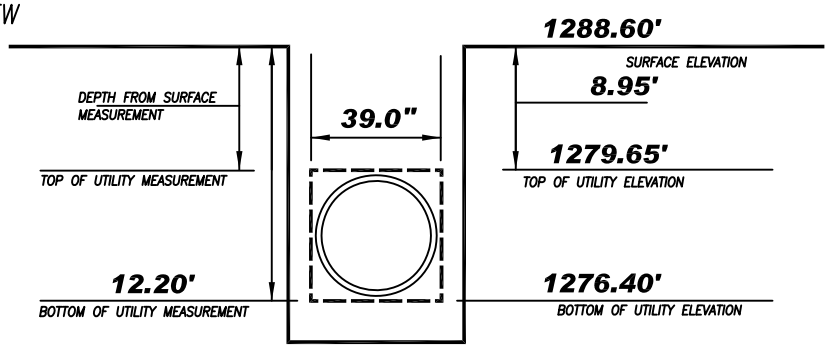
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 36+15.24 98 LT
SURVEYED STATION/OFFSET: **36+14.69 97.58' LT.**
REQUESTED NORTHING: **850019** EASTING: **759791**
SURVEYED NORTHING: **850018.72** EASTING: **759790.31**
ELEVATION OF FINISH SURFACE: **1288.60'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **8.95'**
ELEVATION OF TOP OF FACILITY: **1279.65'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.40'** SOIL TYPE: **GW**
O.D./TYPE: **39.0" WATER PIPE / RC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

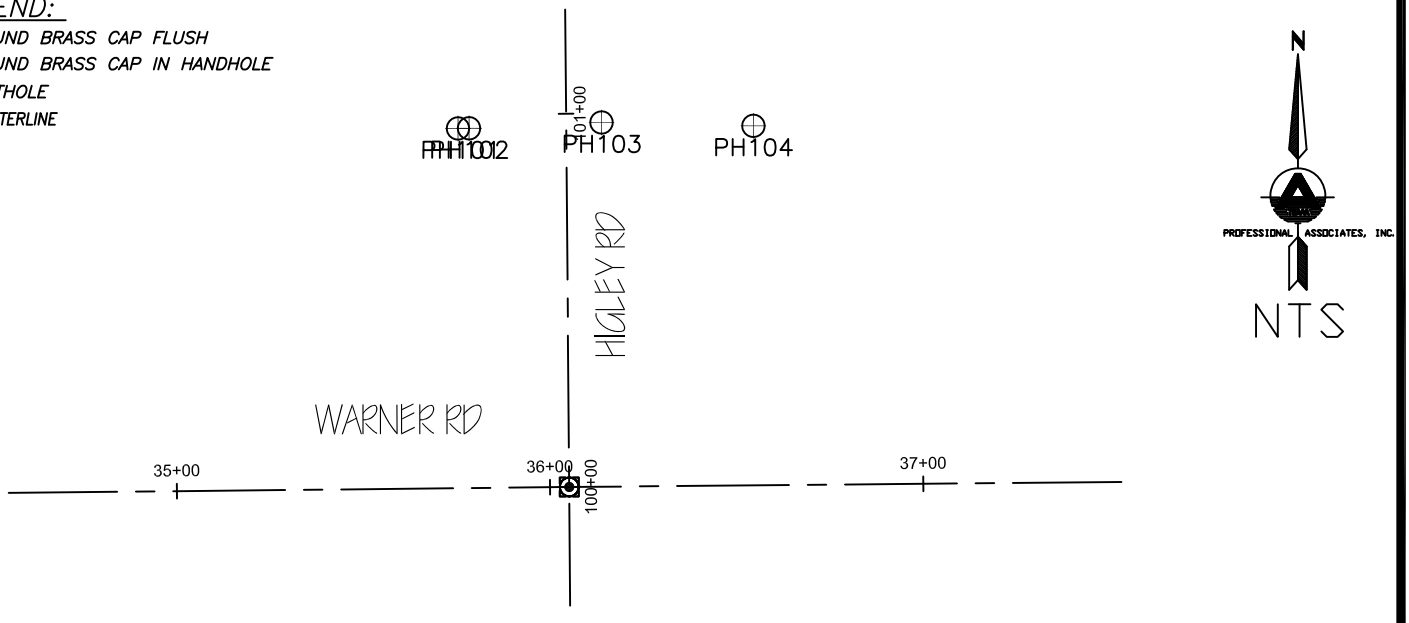
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 103

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110-4
CUSTOMER: Dibble Engineering
TASK ID#: **201300151**
TEST HOLE NO.: **104**
CLIENT HOLE NO.: **104**
DATE DUG: 10/22/13
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5700**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Warner & Higley**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HANDHOLE @ INTERSECTION OF WARNER RD & HIGLEY RD**

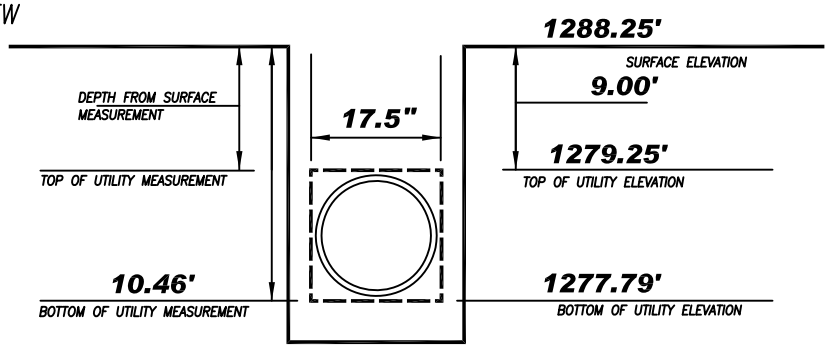
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 36+55.25 98 LT
SURVEYED STATION/OFFSET: **36+55.38 96.31' LT.**
REQUESTED NORTHING: **850019** EASTING: **759831**
SURVEYED NORTHING: **850017.81** EASTING: **759831.00**
ELEVATION OF FINISH SURFACE: **1288.25'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **9.00'**
ELEVATION OF TOP OF FACILITY: **1279.25'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **17.5" RW** **PIPE** **/ stl**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 11/12/13
ARIZONA, U.S.A.

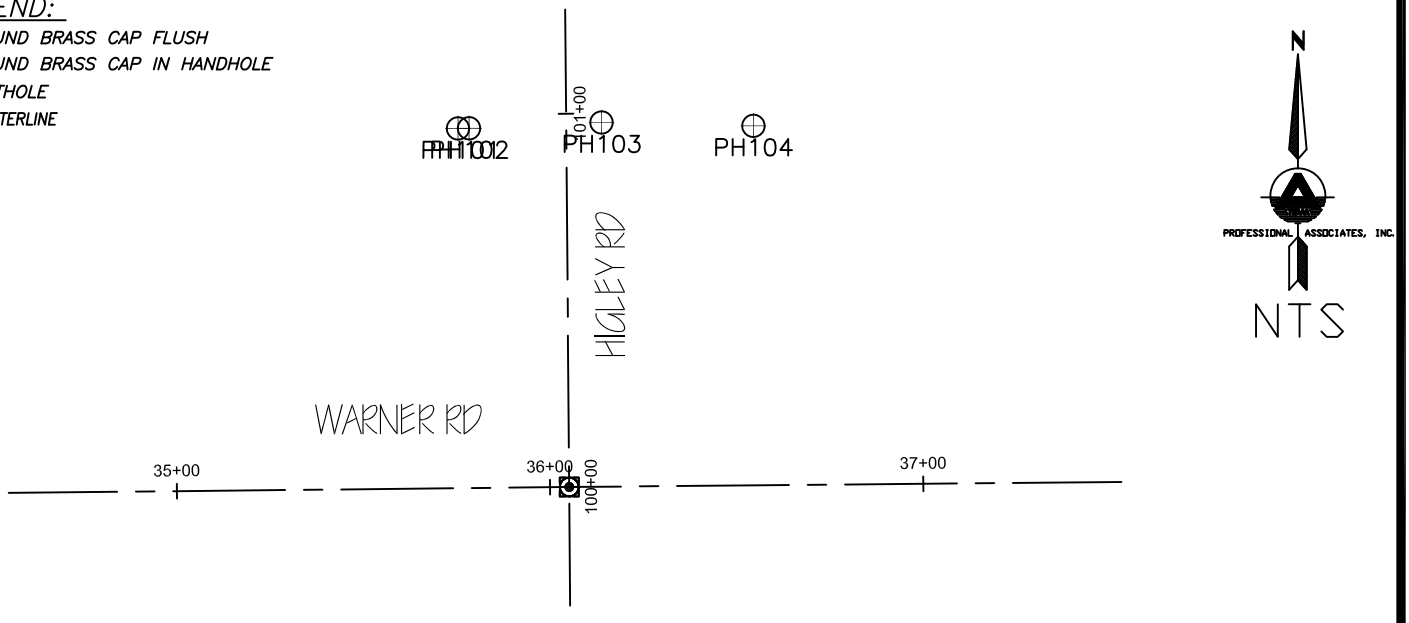
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 104

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/25/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 40 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 40

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	37+08.99	12.4	LT
Station/Offset/Dir: *Surveyed*	37+09.46	12.7	LT

Survey Remarks:
N:849934.77 / E:759885.84 BOTTOM ELEV. 1281.24'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.78 (feet)

Upper: OR (feet)

Lower:

Soils Code:

Utility Elevation TOP: 1282.78 (feet)

Measured Distance From Surface:

TOP: 6.00 (feet)

BOTTOM: (feet)

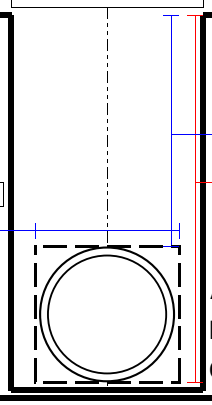
Visual Utility Identification Information

Size/Width: 18.50 (in)

Type Code: W

Structure: P

Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	86.00	E	WATER VALVE
B:	44.30	N	WOOD POWER POLE
C:	17.60	S	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap HandHole

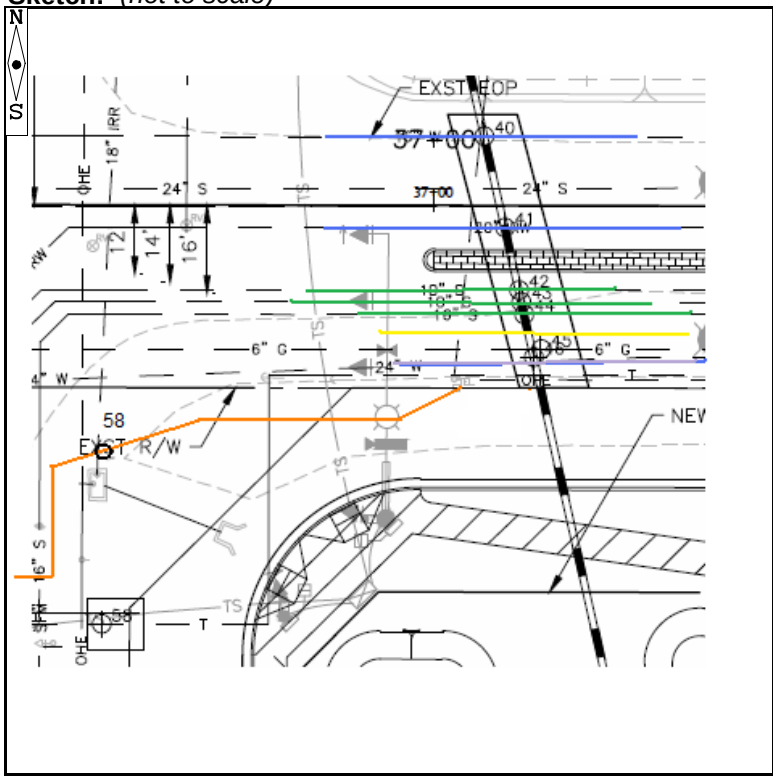
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _ CL - Center Line
_ . . _ PL - Property Line
R/W - Right of Way
_ . . . _ BaseLine

Comments/Remarks:
We located a blue pipe running E/W.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/22/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 41 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 41

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	37+12.69	4.0	RT
Station/Offset/Dir: *Surveyed*	37+12.87	4.7	RT

Survey Remarks:
N:849917.38 / E:759889.41 BOTTOM ELEV. 1278.71'

Profile View (not to scale)

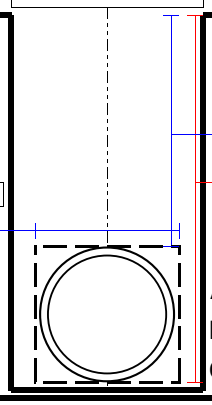
Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1288.70 (feet)

Upper: (feet)
Lower:
Soils Code:

Visual Utility Identification Information

Size/Width: 21.50 (in)
Type Code: RW
Structure: P
Material: PVC



Utility Elevation TOP: 1280.50 (feet)

Measured Distance From Surface:
TOP: 8.20 (feet)
BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	57.60	E	RECLAIMED WATER VALVE
B:	28.00	NE	WOOD POWER POLE
C:	35.20	S	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap HandHole

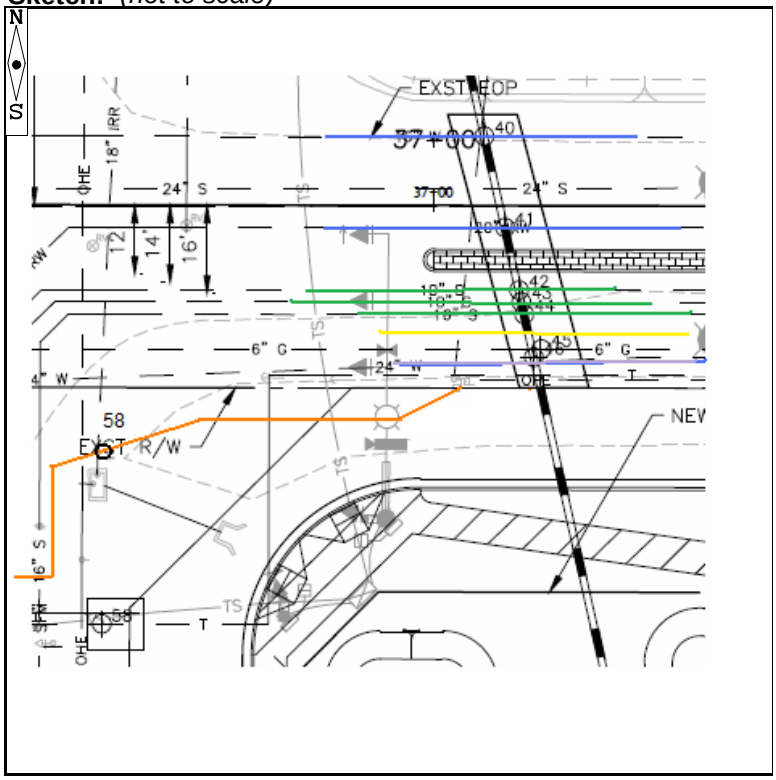
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a purple pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 42 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 42

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	37+15.25	15.3	RT
Station/Offset/Dir: *Surveyed*	37+15.16	14.3	RT

Survey Remarks:
N:849907.76 / E:759891.80 BOTTOM ELEV. 1282.77'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1288.63 (feet)

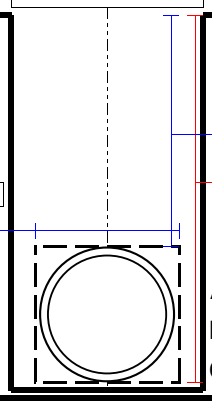
Upper: AC 0.35 (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1283.72 (feet)

Measured Distance From Surface:
TOP: 4.90 (feet)
BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: 11.50 (in)
Type Code: FM
Structure: P
Material: STL



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	20.40	NE	WOOD POWER POLE
B:	47.00	S	WOOD POWER POLE
C:			

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap HandHole

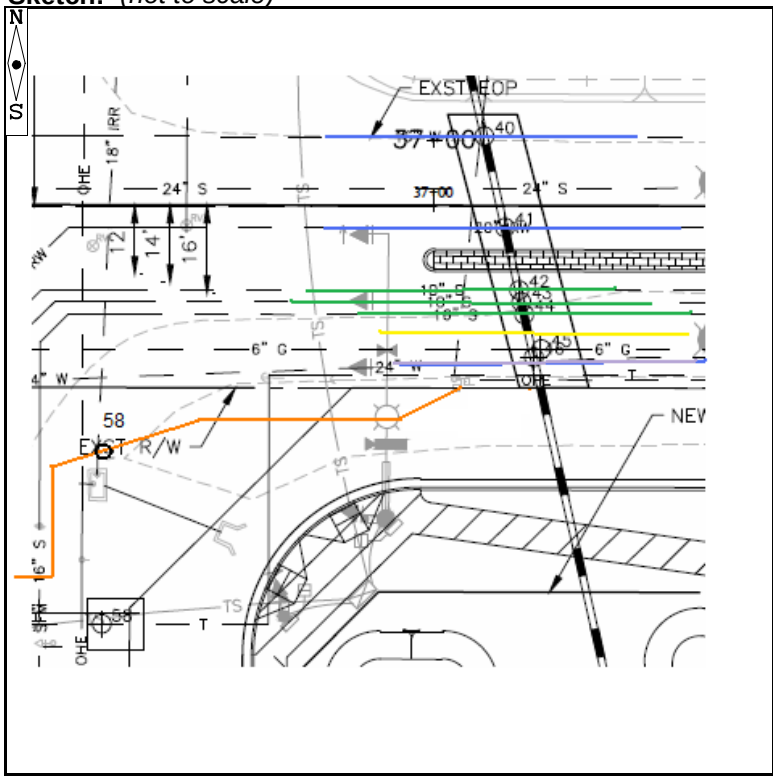
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black plastic wrapped pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 43 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 43

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	37+15.73	17.5	RT
Station/Offset/Dir: *Surveyed*	37+15.41	16.3	RT

Survey Remarks:
N:849905.76 / E:759892.07 BOTTOM ELEV. 1282.73'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1288.54 (feet)

Upper: AC 0.45 (feet)

Lower:

Soils Code: GM

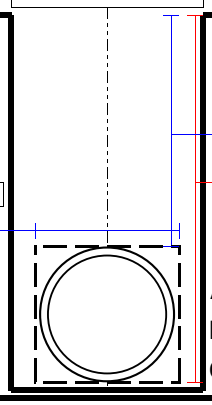
Visual Utility Identification Information

Size/Width: 11.50 (in)

Type Code: FM

Structure: P

Material: STL



Utility Elevation TOP: 1283.69 (feet)

Measured Distance From Surface:

TOP: 4.85 (feet)

BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	19.00	NE	WOOD POWER POLE
B:	49.00	S	WOOD POWER POLE
C:			

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

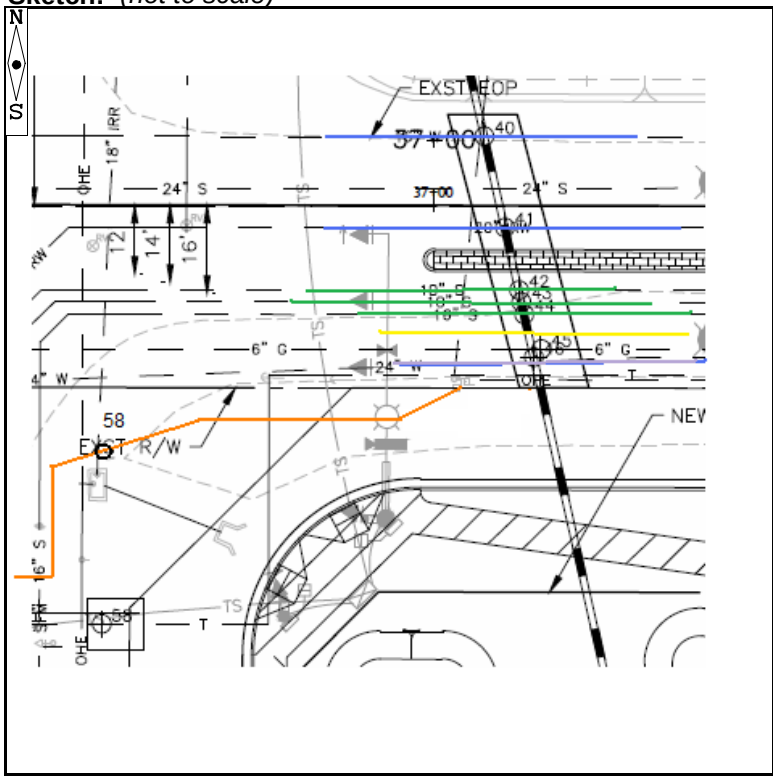
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black plastic wrapped pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 44 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 44

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	37+16.25	19.8	RT
Station/Offset/Dir: *Surveyed*	37+15.52	17.8	RT

Survey Remarks:
N:849904.24 / E:759892.19 BOTTOM ELEV. 1282.94'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1288.65 (feet)

Upper: AC 0.35 (feet)

Lower:

Soils Code: GM

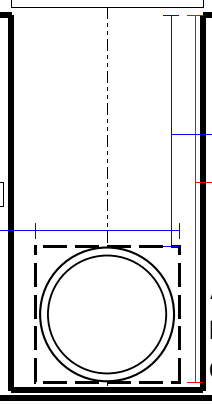
Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: FM

Structure: P

Material: STL



Utility Elevation TOP: 1284.40 (feet)

Measured Distance From Surface:

TOP: 4.25 (feet)

BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	17.90	NE	WOOD POWER POLE
B:	50.60	S	WOOD POWER POLE
C:			

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

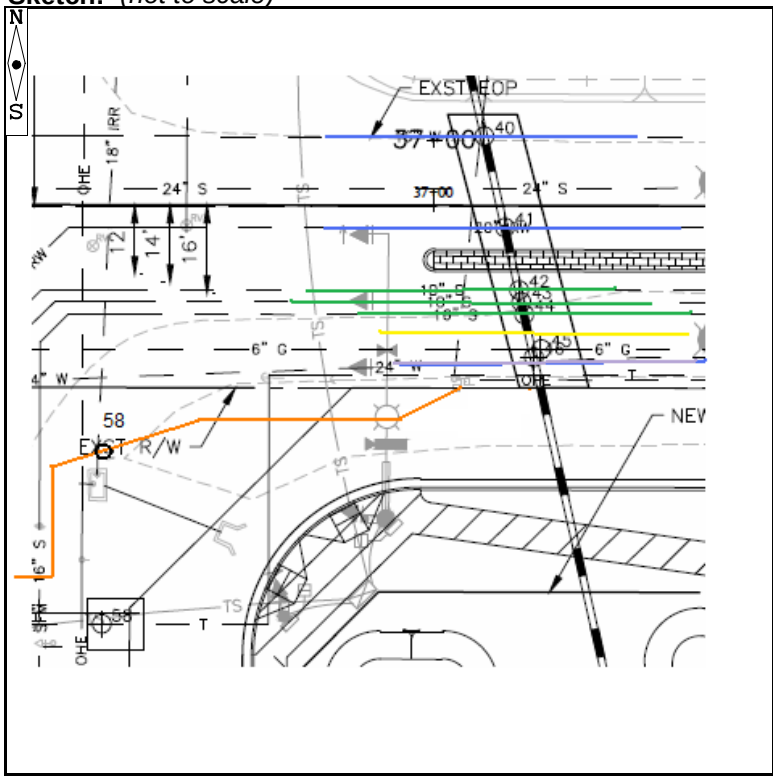
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black plastic wrapped pipe running E/W.

Sketch: *(not to scale)*



KC LOCATE LLC
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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 45 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 45

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	37+17.66	26.0	RT
Station/Offset/Dir: *Surveyed*	37+16.91	21.2	RT

Survey Remarks:
N:849900.87 / E:759893.60 BOTTOM ELEV. 1283.22'

Profile View (not to scale)

Pavement & Soils Informaiton

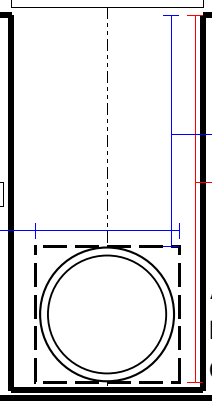
Marker: WHISKER **Marker/Surf. Elevation:** 1288.35 (feet)

Upper: OR (feet)
Lower:
Soils Code: CL

Utility Elevation TOP: 1283.80 (feet)
Measured Distance From Surface:
TOP: 4.55 (feet)
BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: 7.00 (in)
Type Code: G
Structure: P
Material: PE



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	16.60	NE	WOOD POWER POLE
B:	53.90	S	WOOD POWER POLE
C:			

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

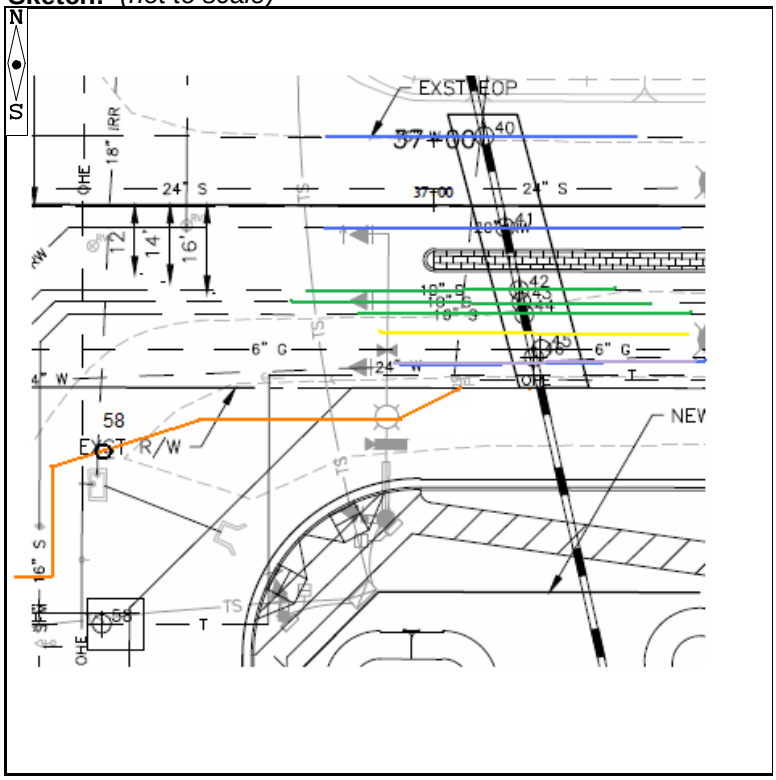
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black pipe running E/W.

Sketch: *(not to scale)*



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(623)825-0230 MBL: (602) 702-2582

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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/25/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 46 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 46

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: (feet) *Requested* 37+17.99 | 27.5 | RT
Station/Offset/Dir: *Surveyed*

Survey Remarks:

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: **Marker/Surf. Elevation:** (feet)

Upper: OR (feet)
Lower:
Soils Code: CH

Utility Elevation TOP: (feet)
Measured Distance From Surface:
TOP: (feet)
BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: (in)
Type Code: RW
Structure: O
Material:

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:			
B:			
C:			

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

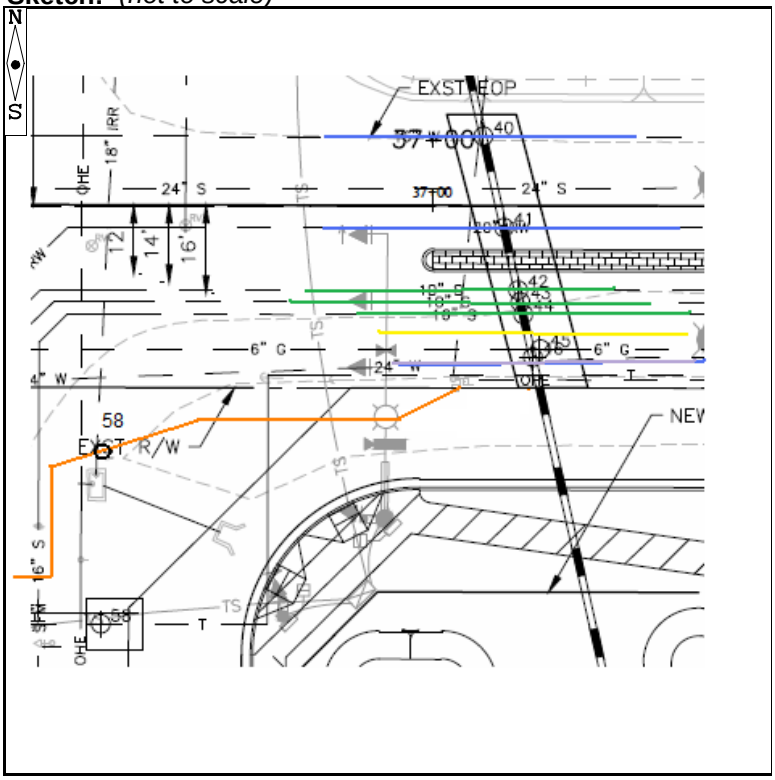
BCHH- Brass Cap HandHole

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:

** Not Found **

Went 5' through clay, then air wouldn't cut the clay so we couldn't get no deeper.

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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/25/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 47 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 47

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	100+56.85	28.9	LT
Station/Offset/Dir: *Surveyed*	100+56.41	26.6	LT

Survey Remarks:
N:849977.27 / E:759754.63 BOTTOM ELEV. 1280.53'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.34 (feet)

Upper: OR (feet)

Lower:

Soils Code: CL

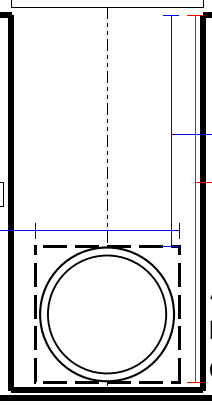
Visual Utility Identification Information

Size/Width: 7.00 (in)

Type Code: G

Structure: P

Material: PE



Utility Elevation TOP: 1281.11 (feet)

Measured Distance From Surface:

TOP: 7.23 (feet)

BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	35.80	SW	SANITARY SEWER MANHOLE
B:	36.40	NE	LIGHT POLE
C:	51.40	NW	WATER VALVE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

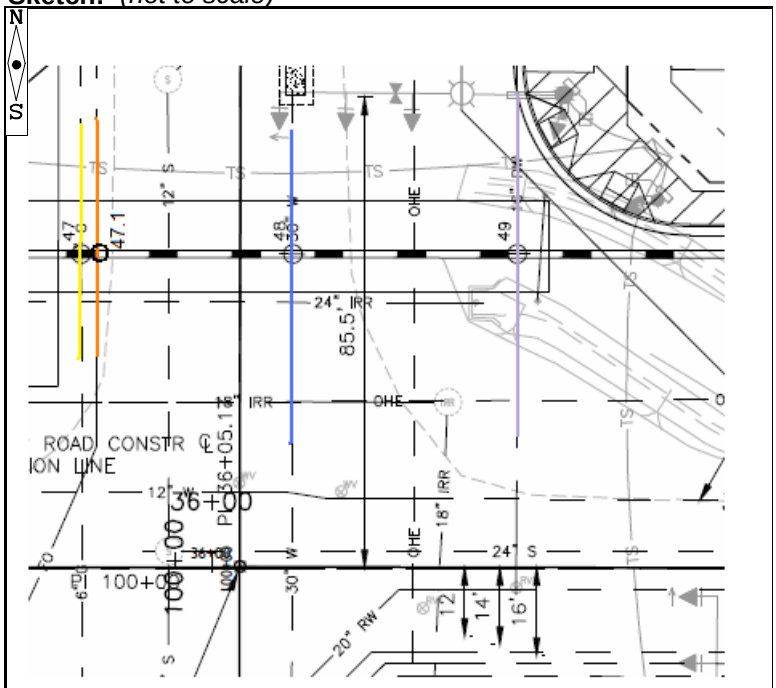
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:
We located a black pipe with orange tracer wire running N/S.

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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/25/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 47.1 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 47 1

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	100+56	26.0	LT
Station/Offset/Dir: *Surveyed*	100+55.56	23.7	LT

Survey Remarks:
N:849976.44 / E:759757.54 BOTTOM ELEV. 1283.07'

Profile View (not to scale)

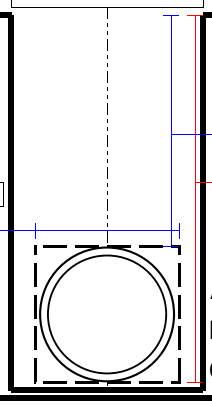
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.47 (feet)

Upper: AC 0.20 (feet)
Lower:
Soils Code: CL

Visual Utility Identification Information

Size/Width: 10.00 (in)
Type Code: TV
Structure: D
Material: PVC



Utility Elevation TOP: 1284.07 (feet)

Measured Distance From Surface:
TOP: 4.40 (feet)
BOTTOM: 5.40 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	34.80	SW	SANITARY SEWER MANHOLE
B:	37.90	NE	LIGHT POLE
C:	48.90	NW	WATER VALVE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

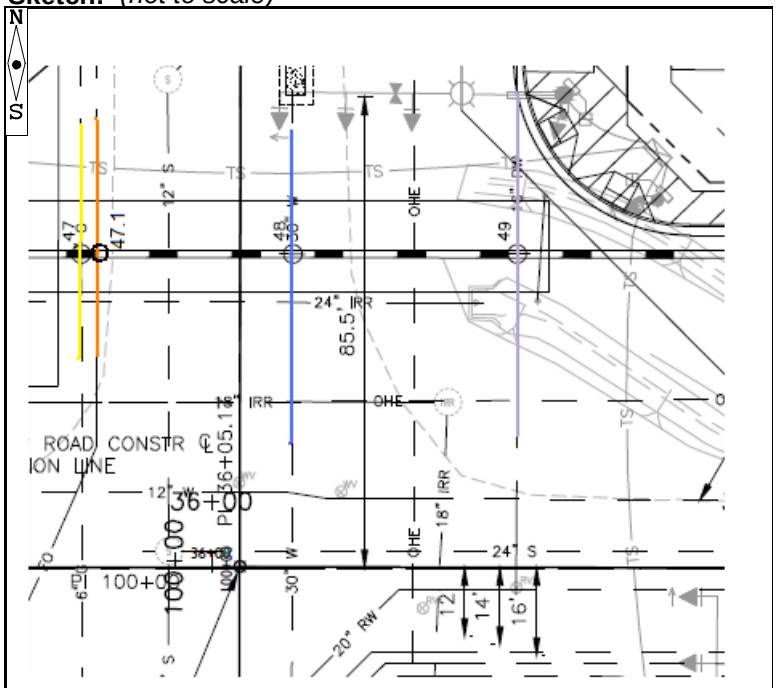
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:
We located 4 - 1.5in gray pipes running N/S.

Also: We exposed a 2in steel pipe running N/S 6in West of marker at 4.72ft deep. Looked like gas pipe?

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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/25/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 48 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 48

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	100+56.92	9.4	RT
Station/Offset/Dir: *Surveyed*	100+56.96	9.3	RT

Survey Remarks:
N:849978.11 / E:759790.47 BOTTOM ELEV. 1276.08'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1288.58 (feet)

Upper: AC 0.45 (feet)

Lower:

Soils Code: GM

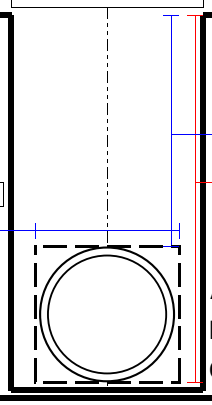
Visual Utility Identification Information

Size/Width: 39.00 (in)

Type Code: W

Structure: P

Material: RC



Utility Elevation TOP: 1279.33 (feet)

Measured Distance From Surface:

TOP: 9.25 (feet)

BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	39.00	SE	SANITARY SEWER MANHOLE
B:	42.80	NE	WATER VALVE
C:	65.10	NE	LIGHT POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
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V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
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R/W - Right of Way
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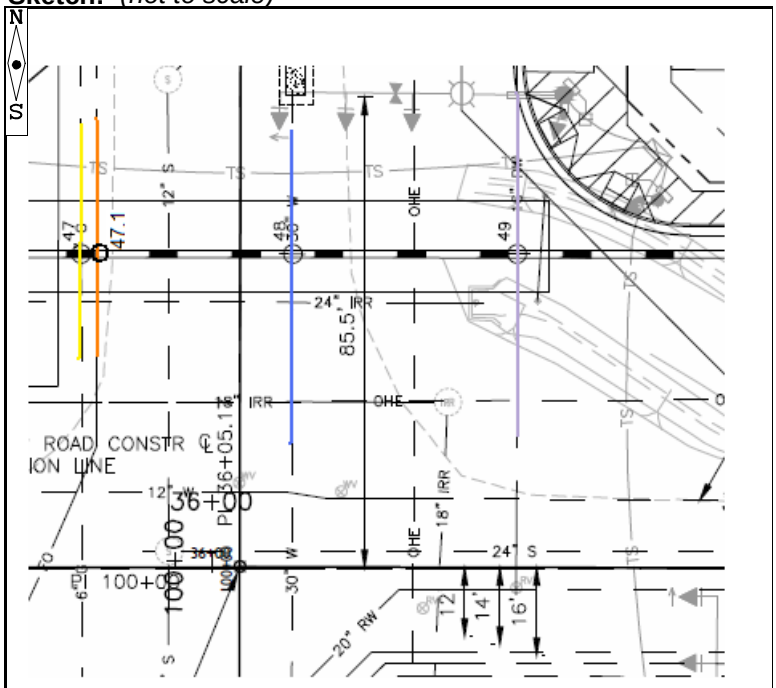
Sketch: *(not to scale)*



Comments/Remarks:
We located a pipe running N/S.

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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/22/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 49 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 49

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	100+56.99	50.0	RT
Station/Offset/Dir: *Surveyed*	100+56.78	50.2	RT

Survey Remarks:
N:849978.28 / E:759831.36 BOTTOM ELEV. 1278.73'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1289.22 (feet)

Upper: OR (feet)

Lower:

Soils Code: CH

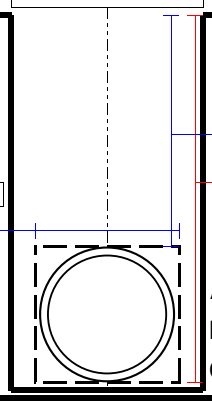
Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: RW

Structure: P

Material: STL



Utility Elevation TOP: 1280.19 (feet)

Measured Distance From Surface:

TOP: 9.03 (feet)

BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	87.80	SE	WATER MANHOLE
B:	60.50	N	RECLAIMED WATER VALVE
C:	70.90	SW	SANITARY SEWER MANHOLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
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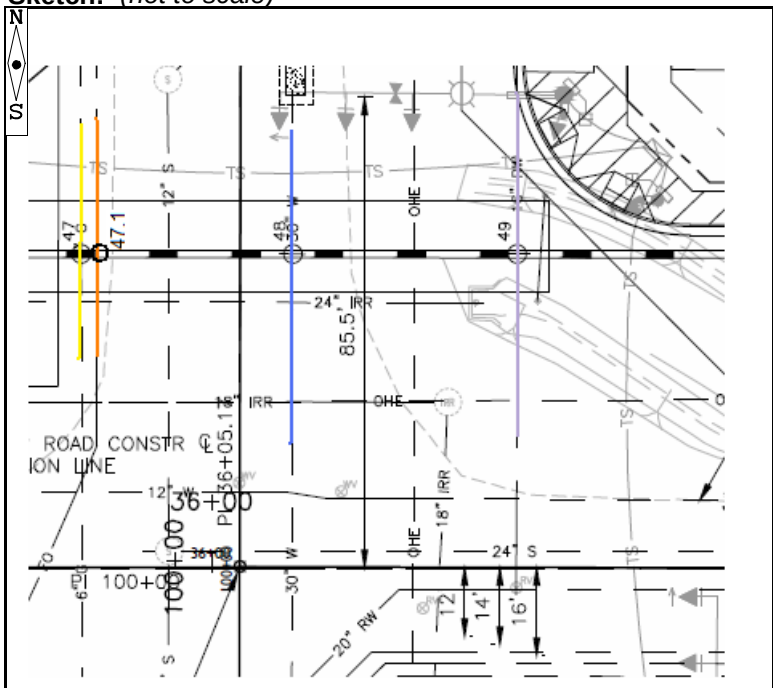
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Sketch: *(not to scale)*



Comments/Remarks:
We located a plastic wrapped pipe running N/S.

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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/22/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 50 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 50

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	48+39.31	12.0	LT
Station/Offset/Dir: *Surveyed*	48+40.00	12.5	LT

Survey Remarks:
N:849944.88 / E:761016.34 BOTTOM ELEV. 1286.34'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.70 (feet)

Upper: OR (feet)

Lower:

Soils Code: GM

Utility Elevation TOP: 1287.80 (feet)

Measured Distance From Surface:

TOP: 3.90 (feet)

BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: W

Structure: P

Material: STL

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	49.60	NE	SANITARY SEWER MANHOLE
B:	48.00	W	WATER MANHOLE BLOW OFF
C:	52.30	NW	RECLAIMED WATER VALVE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap
HandHole

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

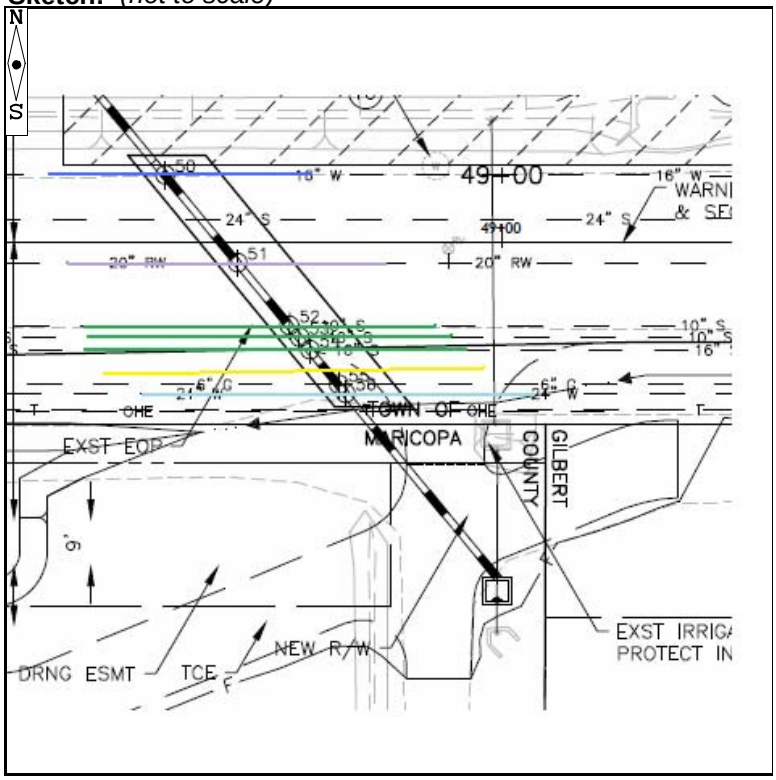
_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:

We located a plastic wrapped pipe running E/W.

Inverted in blow off manhole at 3.88.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/25/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 51 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 51

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	48+52.35	4.0	RT
Station/Offset/Dir: *Surveyed*	48+52.32	2.7	RT

Survey Remarks:
N:849929.74 / E:761028.81 BOTTOM ELEV. 1282.81'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.60 (feet)

Upper: AC 0.40 (feet)

Lower:

Soils Code: CL

Utility Elevation TOP: 1284.60 (feet)

Measured Distance From Surface:

TOP: 7.00 (feet)

BOTTOM: (feet)

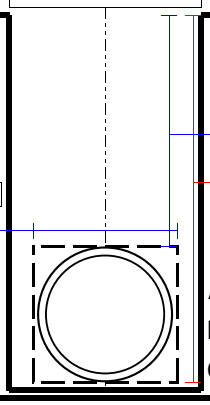
Visual Utility Identification Information

Size/Width: 21.50 (in)

Type Code: RW

Structure: P

Material: PVC



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	61.50	SE	SANITARY SEWER MANHOLE
B:	38.10	SW	RECLAIMED WATER VALVE
C:	39.20	SW	SANITARY SEWER MANHOLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

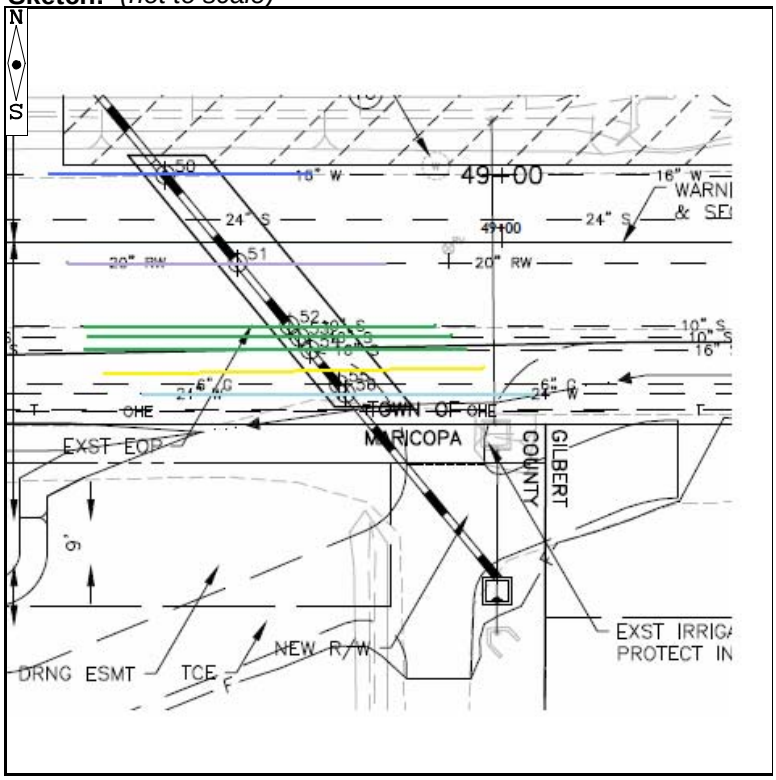
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a purple pipe running E/W.

Sketch: *(not to scale)*



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Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 52 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 52

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	48+61.72	15.2	RT
Station/Offset/Dir: *Surveyed*	48+60.16	13.3	RT

Survey Remarks:
N:849919.22 / E:761036.74 BOTTOM ELEV. 1284.32'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.28 (feet)

Upper: AC 0.40 (feet)

Lower:

Soils Code: GM

Utility Elevation TOP: 1285.28 (feet)

Measured Distance From Surface:

TOP: 6.00 (feet)

BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: 11.50 (in)

Type Code: FM

Structure: P

Material: STL

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	71.10	SE	SANITARY SEWER MAN HOLE
B:	32.50	SW	RECLAIMED WATER VALVE
C:	115.60	NW	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

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CIPP- Cast in Place
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E/P - Edge of Pavement
F/C - Face of Curb
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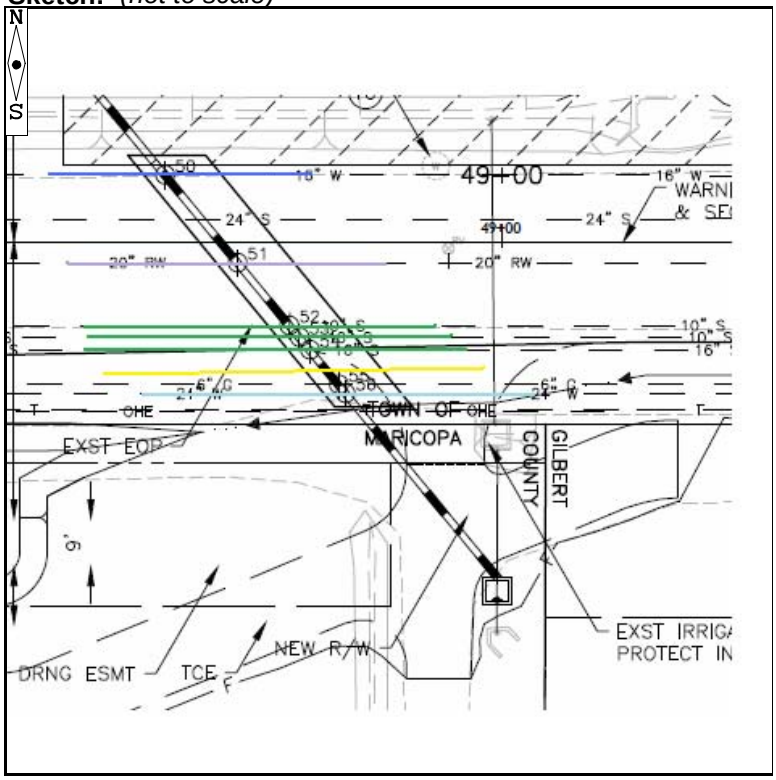
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black plastic wrapped pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 53 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 53

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	48+63.48	17.4	RT
Station/Offset/Dir: *Surveyed*	48+61.65	15.0	RT

Survey Remarks:
N:849917.56 / E:761038.25 BOTTOM ELEV. 1284.26'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: PK NAIL **Marker/Surf. Elevation:** 1291.22 (feet)

Upper: AC 0.30 (feet)

Lower:

Soils Code: GM

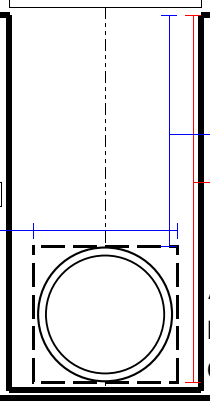
Visual Utility Identification Information

Size/Width: 11.50 (in)

Type Code: FM

Structure: P

Material: STL



Utility Elevation TOP: 1285.22 (feet)

Measured Distance From Surface:

TOP: 6.00 (feet)

BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	73.00	SE	SANITARY SEWER MAN HOLE
B:	31.80	SW	RECLAIMED WATER VALVE
C:	114.20	NW	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap
HandHole

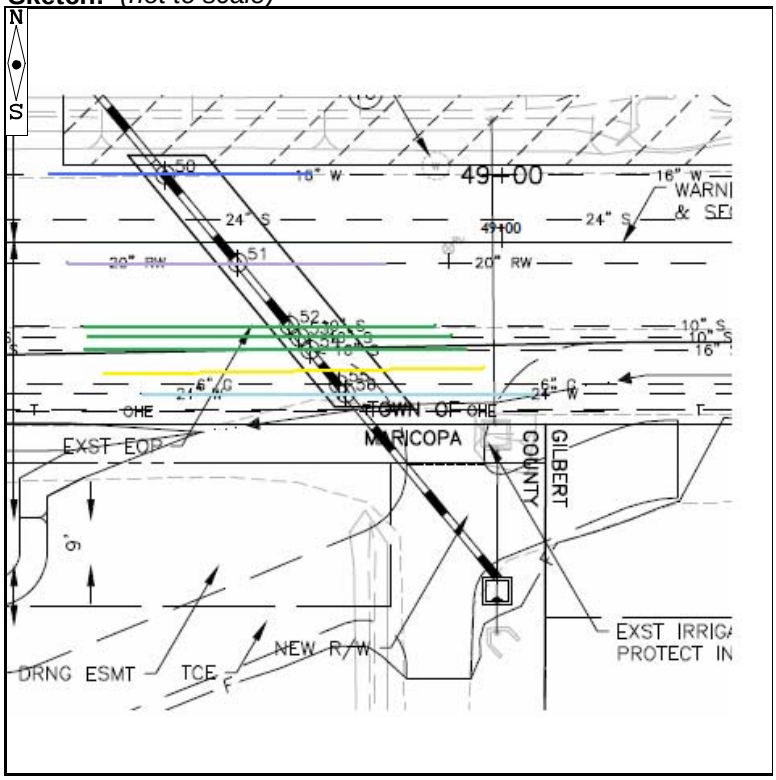
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black plastic wrapped pipe running E/W.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014

Project: Higley & Warner Rd / Round 2

Client Name: Dibble Engineering **Ref:** 101235

Work Site: Higley & Warner

Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 54 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 54

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	48+65.38	19.7	RT
Station/Offset/Dir: *Surveyed*	48+62.83	16.9	RT

Survey Remarks:
N:849915.70 / E:761039.44 BOTTOM ELEV. 1284.34'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1290.95 (feet)

Upper: OR (feet)

Lower:

Soils Code: GM

Utility Elevation TOP: 1285.80 (feet)

Measured Distance From Surface:

TOP: 5.15 (feet)

BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: 17.50 (in)

Type Code: FM

Structure: P

Material: STL

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	74.70	SE	SANITARY SEWER MANHOLE
B:	31.60	SW	RECLAIMED WATER VALVE
C:	113.00	NW	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap
HandHole

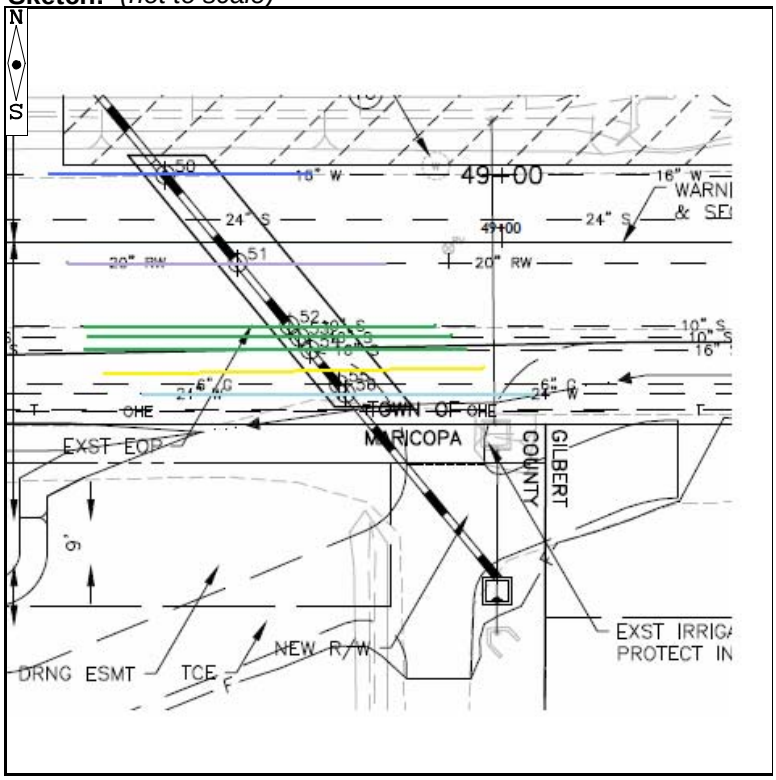
C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black plastic wrapped pipe running E/W.

Sketch: *(not to scale)*



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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/22/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 55 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 55

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	48+82.90	26.0	RT
Station/Offset/Dir: *Surveyed*	48+68.76	23.0	RT

Survey Remarks:
N:849909.64 / E:761045.43 BOTTOM ELEV. 1285.72'

Profile View (not to scale)

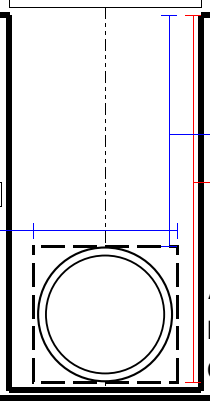
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1291.41 (feet)

Upper: OR (feet)
Lower:
Soils Code:

Visual Utility Identification Information

Size/Width: 7.00 (in)
Type Code: G
Structure: P
Material: PE



Utility Elevation TOP: 1286.31 (feet)

Measured Distance From Surface:
TOP: 5.10 (feet)
BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	82.20	SE	SANITARY SEWER MAN HOLE
B:	30.60	SW	RECLAIMED WATER VALVE
C:	107.20	NW	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

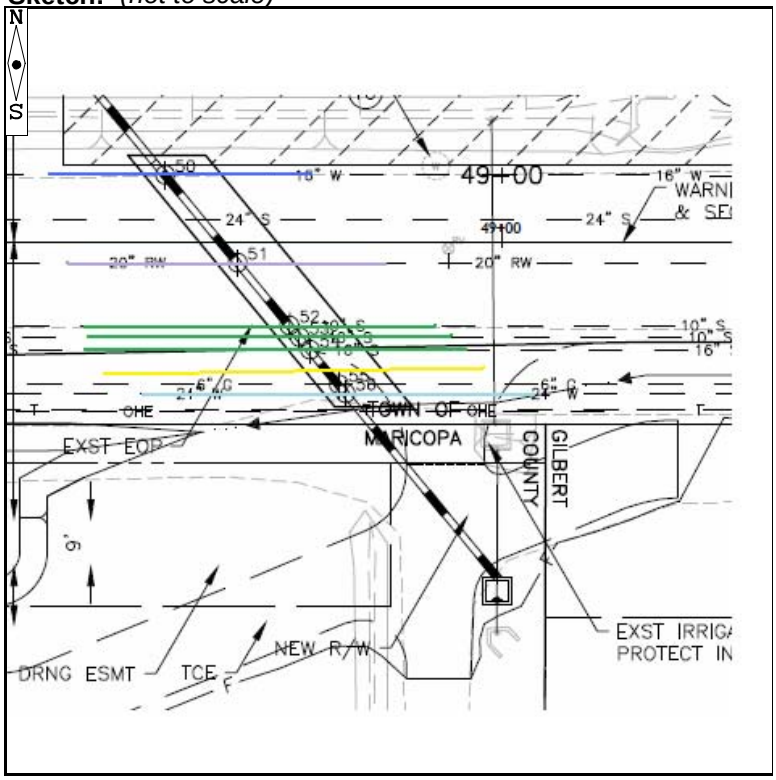
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black pipe running E/W.

Sketch: *(not to scale)*



KC LOCATE LLC
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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/22/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 56 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 56

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	48+71.84	27.5	RT
Station/Offset/Dir: *Surveyed*	48+83.24	27.2	RT

Survey Remarks:
N:849905.56 / E:761059.94 BOTTOM ELEV. 1284.09'

Profile View (not to scale)

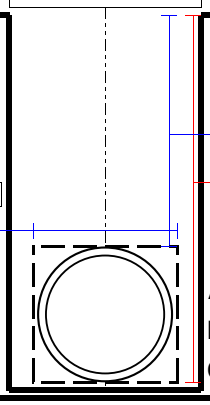
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1291.89 (feet)

Upper: (feet)
Lower:
Soils Code:

Visual Utility Identification Information

Size/Width: 48.00 (in)
Type Code: RW
Structure: P
Material: EN



Utility Elevation TOP: 1288.09 (feet)

Measured Distance From Surface:
TOP: 3.80 (feet)
BOTTOM: 7.50 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	97.30	SE	SANITARY SEWER MAN HOLE
B:	26.80	SW	RECLAIMED WATER VALVE
C:	91.70	NW	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap
HandHole

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

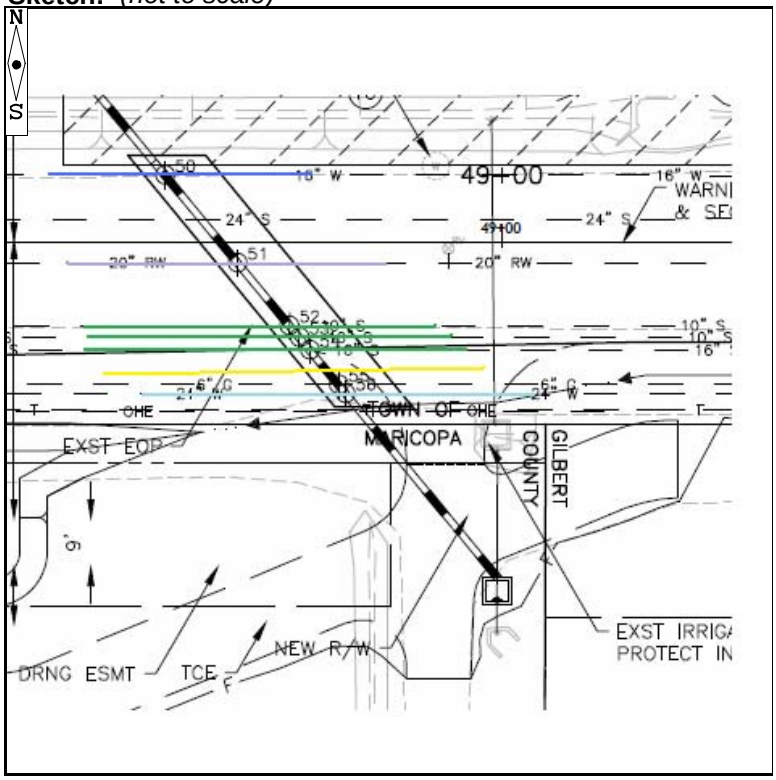
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe encased in concrete running E/W.

SRP RW

Sketch: *(not to scale)*



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25440 N. 93rd Ave Peoria, AZ 85383
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SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 57 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 57

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	30+09.92	77.0	RT
Station/Offset/Dir: *Surveyed*	30+09.92	77.2	RT

Survey Remarks:
N:849837.60 / E:759187.28 BOTTOM ELEV. 1280.60'

Profile View (not to scale)

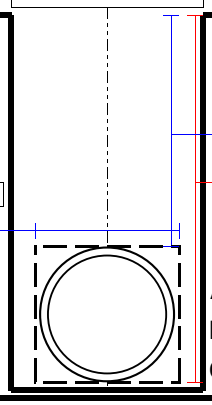
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1285.10 (feet)

Upper: OR (feet)
Lower:
Soils Code: GM

Visual Utility Identification Information

Size/Width: 12.00 (in)
Type Code: E
Structure: D
Material: PVC



Utility Elevation TOP: 1281.55 (feet)

Measured Distance From Surface:
TOP: 3.55 (feet)
BOTTOM: 4.50 (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	14.00	SE	TELCO PEDESTAL
B:	25.00	SW	TV PEDESTAL
C:	16.70	NW	DRAIN COVER

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

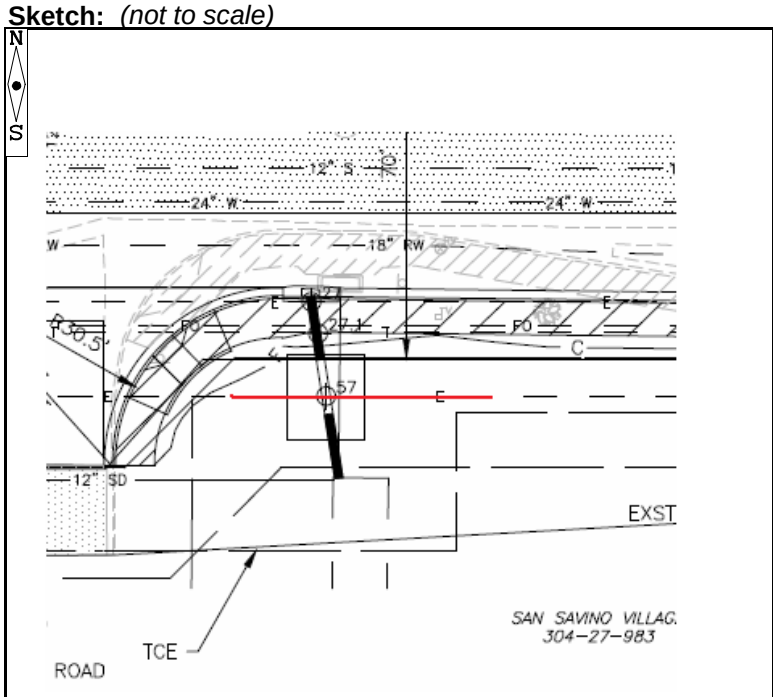
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located 2 -4" white pipes running E/W,

Sketch: *(not to scale)*



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25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/25/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 58 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 58

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	99+24.12	35.0	RT
Station/Offset/Dir: *Surveyed*	99+62.66	36.5	RT

Survey Remarks:
N:849884.02 / E:759818.51 BOTTOM ELEV. 1284.04'

Profile View (not to scale)

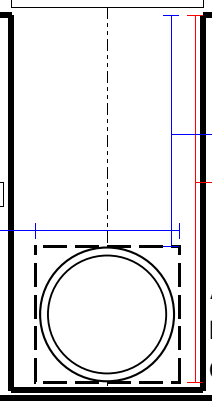
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.23 (feet)

Upper: OR (feet)
Lower:
Soils Code: CL

Visual Utility Identification Information

Size/Width: 0.50 (in)
Type Code: TEL
Structure: C
Material: CABLE



Utility Elevation TOP: 1284.08 (feet)

Measured Distance From Surface:
TOP: 4.15 (feet)
BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	30.00	S	RECLAIMED WATER VALVE
B:	61.50	W	WOOD POWER POLE
C:	27.00	N	WOOD POWER POLE

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap HandHole

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

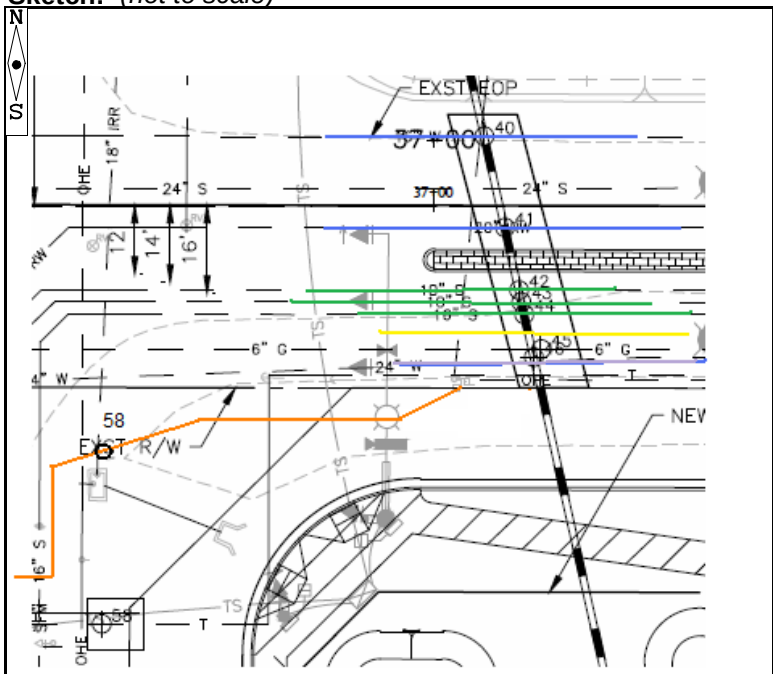
_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a black cable running NE/SE.

It crosses higley at 99+41.

Note: Storm drain pipe 18" at 2.5 deep and 1' West of marker running N/S to drain.

Sketch: *(not to scale)*



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25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 59 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 59

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	106+50.00	20.0	RT
Station/Offset/Dir: *Surveyed*	106+49.95	18.7	RT

Survey Remarks:
N:850571.17 / E:759794.86 BOTTOM ELEV. 1281.00'

Profile View (not to scale)

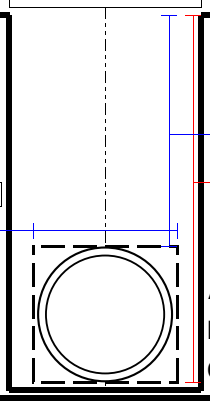
Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1288.73 (feet)

Upper: OR (feet)
Lower:
Soils Code: GW

Visual Utility Identification Information

Size/Width: 39.00 (in)
Type Code: W
Structure: P
Material: RC



Utility Elevation TOP: 1284.25 (feet)

Measured Distance From Surface:
TOP: 4.48 (feet)
BOTTOM: (feet)

Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	72.60	SW	WOOD POWER POLE
B:	176.40	NW	SANITARY SEWER MAN HOLE
C:			

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

C - Cable
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P - Pipe
V - Vault Box

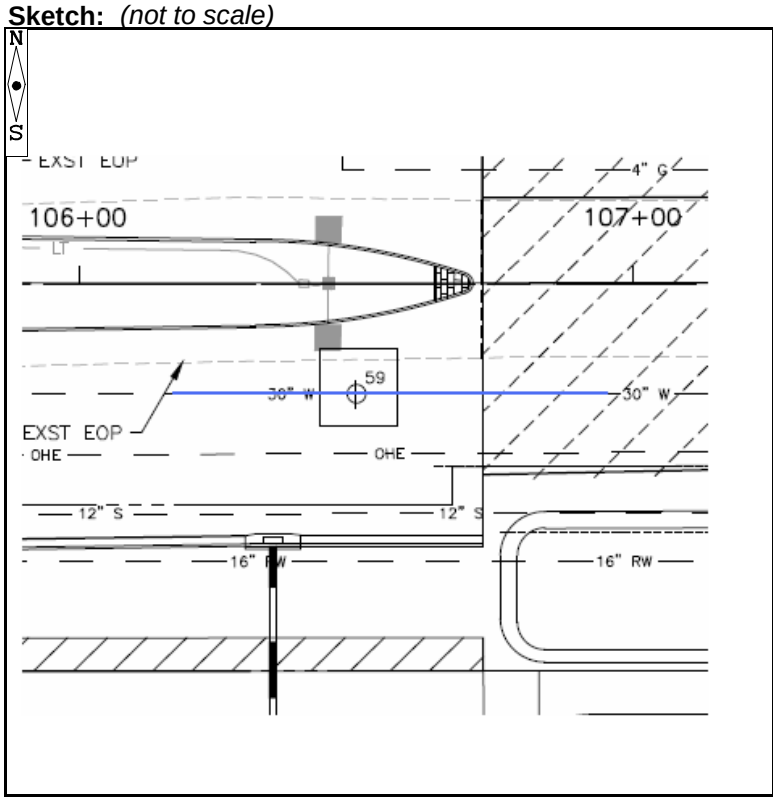
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

BM - Benchmark
BCF - Brass Cap Flush
BCHH- Brass Cap HandHole

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a pipe running N/S.

Sketch: *(not to scale)*



KC LOCATE LLC
25440 N. 93rd Ave Peoria, AZ 85383
(623)825-0230 MBL: (602) 702-2582

SAE

Utility Survey Report

Task ID: 201400018 **Date Located:** 2/21/2014
Project: Higley & Warner Rd / Round 2
Client Name: Dibble Engineering **Ref:** 101235
Work Site: Higley & Warner
Truck: 21 **Crew Names:** Ken, Bill & Jesus

Client Hole#: 60 **Client Plan Sheet:** **Map Grid:** **KC Hole#:** 60

BM Desc.: BCHH @ WARNER RD & HIGLEY **Status:** GIVEN **B.M. Elev.:** (feet) 1288.44

Station/Offset/Dir: *Requested* (feet)	122+50.00	50.2	RT
Station/Offset/Dir: *Surveyed*	122+50.00	49.7	RT

Survey Remarks:
N:852171.42 / E:759812.41 BOTTOM ELEV. 1279.85'

Profile View (not to scale)

Pavement & Soils Informaiton

Marker: WHISKER **Marker/Surf. Elevation:** 1286.65 (feet)

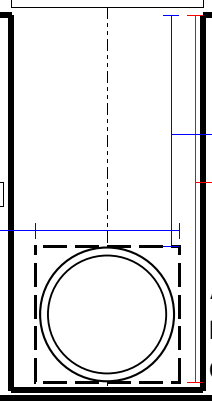
Upper: OR (feet)
Lower:
Soils Code: GM

Utility Elevation TOP: 1281.30 (feet)

Measured Distance From Surface:
TOP: 5.55 (feet)
BOTTOM: (feet)

Visual Utility Identification Information

Size/Width: 17.50 (in)
Type Code: RW
Structure: P
Material: STL



Physical SWING TIE Information

	Dist. (ft)	Dir.	from PERMANENT existing fixture
A:	29.10	SE	WOOD POWER POLE
B:	107.60	NE	SANITARY SEWER MAN HOLE
C:			

TERMS:
UKN - Unknown
AC - Asphalt/Concrete
AB - Aggregate Base
CC - Cement/Concrete
OR - Off Road (Dirt)

E - Electrical
G - Gas/Petro/LP
IR - Irrigation
TV - Cable TV
FO - Fiber Optics
SD - Storm Drain
SS - Sanitary Sewer
TEL - Telephone
TS - Traffic Signal
W - Water
CH - Chemical
JT - Joint Trench

BM - Benchmark
BCF - Brass Cap Flush

ABS - Plastic Pipe
ACP - Asbes. Cement
CIP - Cast Iron Pipe
CIPP- Cast in Place
CAP - Corrugated Alum
GIP - Galvanized Iron
GSP - Galvanized Steel
PE - Poly Ethylene
PVC - PolyVinal Chlor .
RC - Reinforced Conc.
SL - Slurry
STL - Steel
STLC- Steel Coated
STLW- Steel Wrapped
TR - Transite
VCP - Vitrified Clay Pipe
WD - Wood

BCHH- Brass Cap HandHole

C - Cable
D - Duct bank
P - Pipe
V - Vault Box

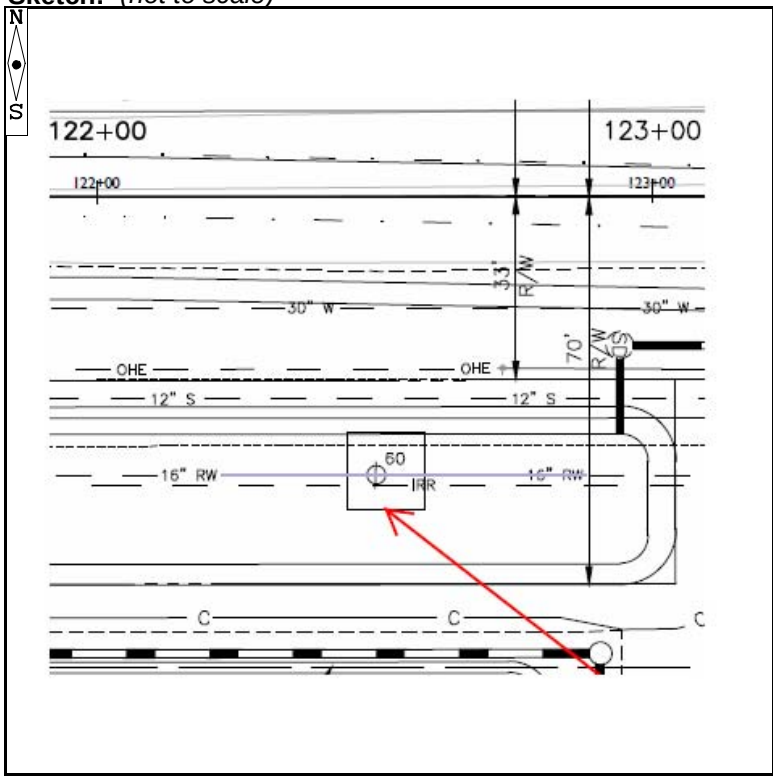
B/C - Back of Curb
CB - Catch Basin
CLF - Chain Link Fence
CMU - Conc. Mason Wall
E/P - Edge of Pavement
F/C - Face of Curb
F/H - Fire Hydrant
IN - Inspection Hole
M/H - ManHole
P/P - Power Pole
S/W - Side Walk
WM - Water Meter
WV - Water Valve

_ . _CL - Center Line
_ . . _PL - Property Line
R/W - Right of Way
_ . . . _BaseLine

Comments/Remarks:
We located a purple plastic wrapped pipe running N/S.

Note: 1.40 East of marker is a 2" steel pipe running N/S at 1' Deep.

Sketch: *(not to scale)*



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **40**
CLIENT HOLE NO.: **40**
DATE DUG: 02/25/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

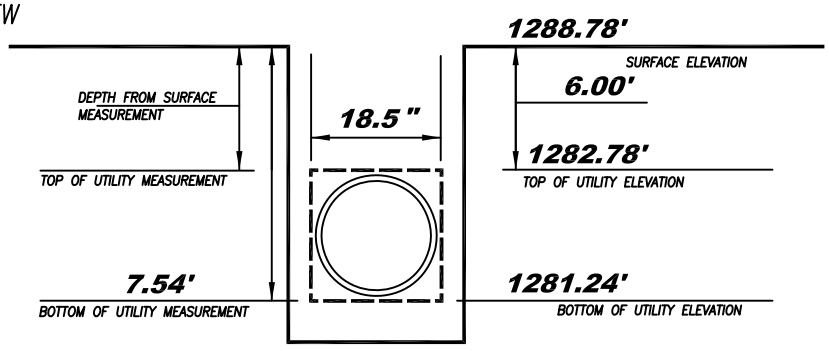
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 37+08.99 12 LT
SURVEYED STATION/OFFSET: **37+09.46 12.74' LT.**
REQUESTED NORTHING: **849935** EASTING: **759885**
SURVEYED NORTHING: **849934.77** EASTING: **759885.84**
ELEVATION OF FINISH SURFACE: **1288.78'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.00'**
ELEVATION OF TOP OF FACILITY: **1282.78'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE:
O.D./TYPE: **18.5 " WATER PIPE / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

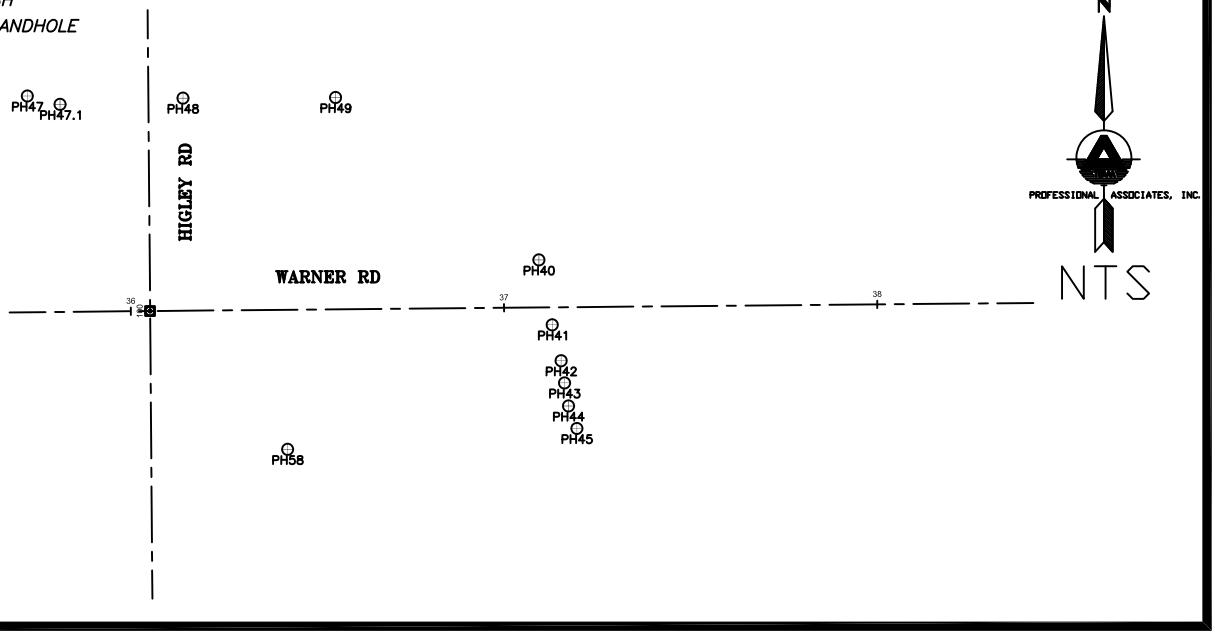
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 40

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **41**
CLIENT HOLE NO.: **41**
DATE DUG: 02/22/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

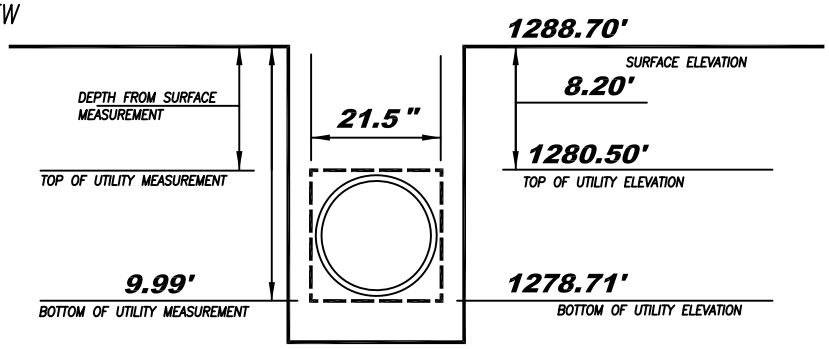
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 37+12.69 4 RT
SURVEYED STATION/OFFSET: **37+12.87 4.68' RT.**
REQUESTED NORTHING: **849918** EASTING: **759889**
SURVEYED NORTHING: **849917.38** EASTING: **759889.41**
ELEVATION OF FINISH SURFACE: **1288.70'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **8.20'**
ELEVATION OF TOP OF FACILITY: **1280.50'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : SOIL TYPE:
O.D./TYPE: **21.5 " RW PIPE / PVC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

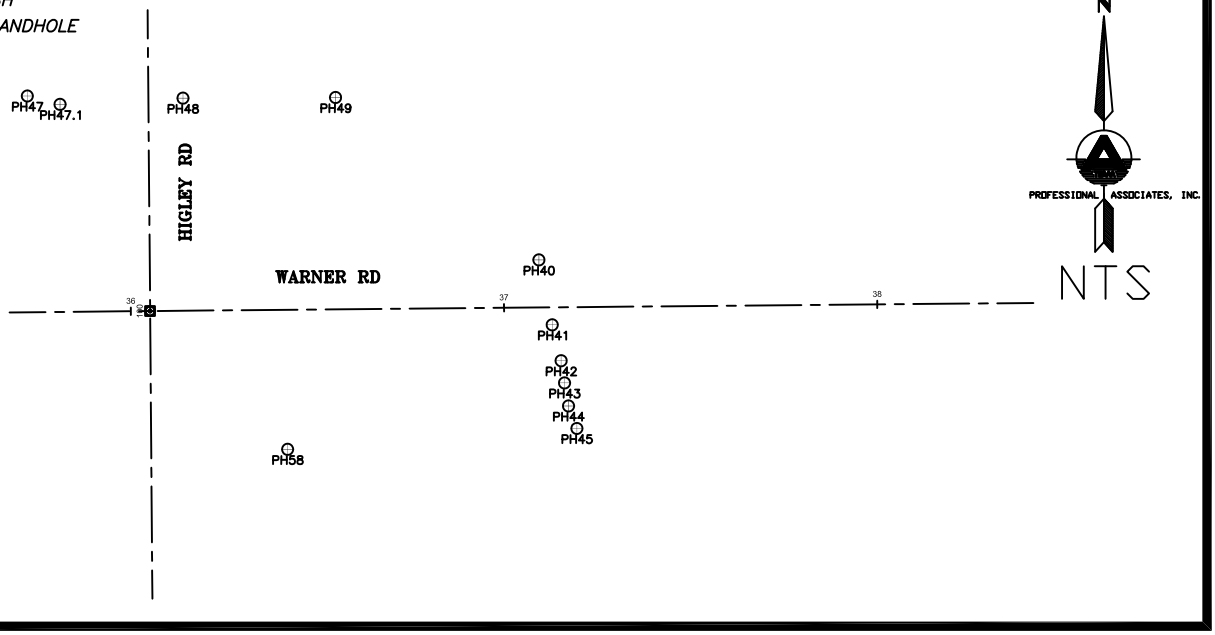
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 41

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **42**
CLIENT HOLE NO.: **42**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

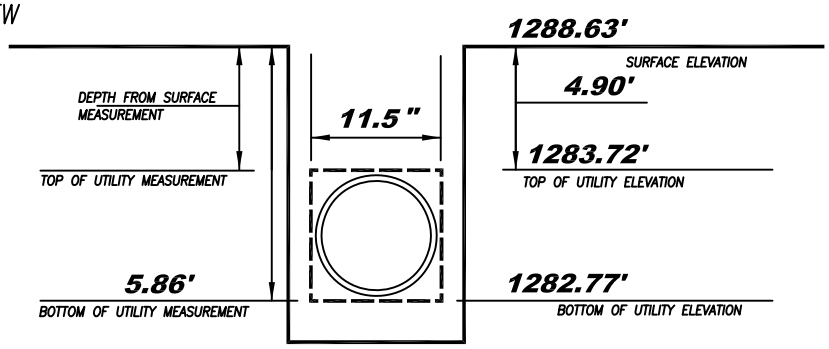
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 37+15.25 15 RT
SURVEYED STATION/OFFSET: **37+15.16 14.32' RT.**
REQUESTED NORTHING: **849907** EASTING: **759892**
SURVEYED NORTHING: **849907.76** EASTING: **759891.80**
ELEVATION OF FINISH SURFACE: **1288.63'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.90'**
ELEVATION OF TOP OF FACILITY: **1283.72'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.35'** SOIL TYPE: **GM**
O.D./TYPE: **11.5 " FM PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

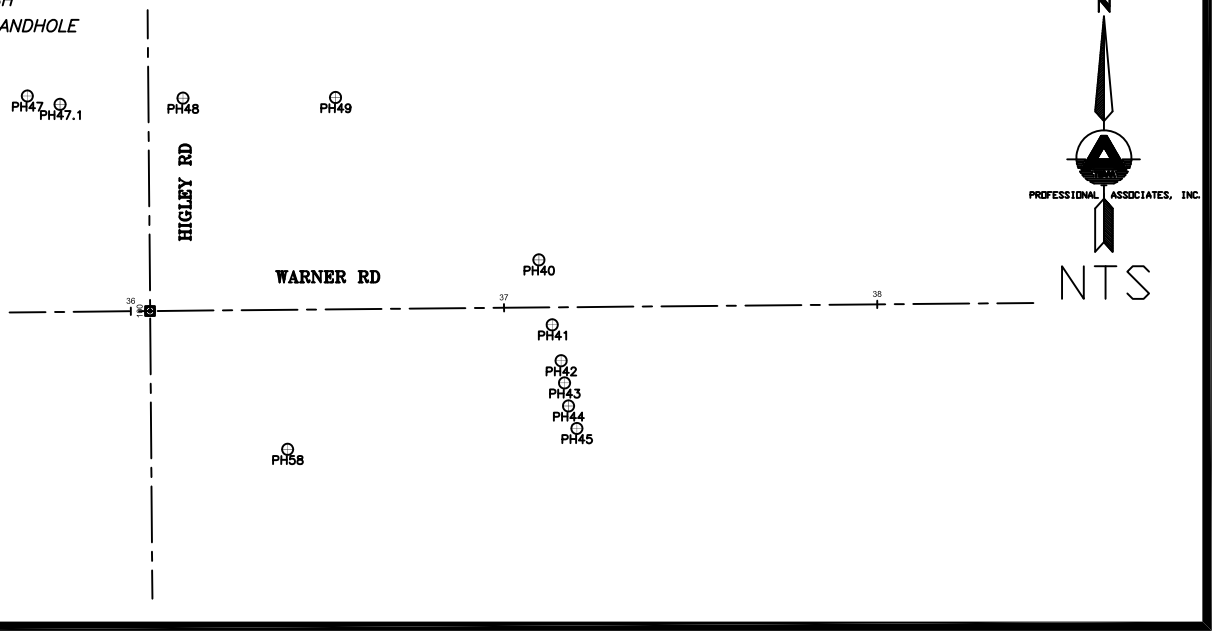
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 42

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **43**
CLIENT HOLE NO.: **43**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

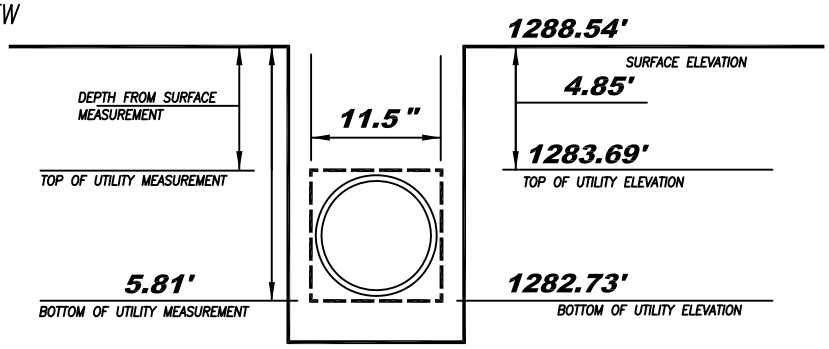
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 37+15.73 18 RT
SURVEYED STATION/OFFSET: **37+15.41 16.32' RT.**
REQUESTED NORTHING: **849905** EASTING: **759892**
SURVEYED NORTHING: **849905.76** EASTING: **759892.07**
ELEVATION OF FINISH SURFACE: **1288.54'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.85'**
ELEVATION OF TOP OF FACILITY: **1283.69'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.45'** SOIL TYPE: **GM**
O.D./TYPE: **11.5 " FM PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

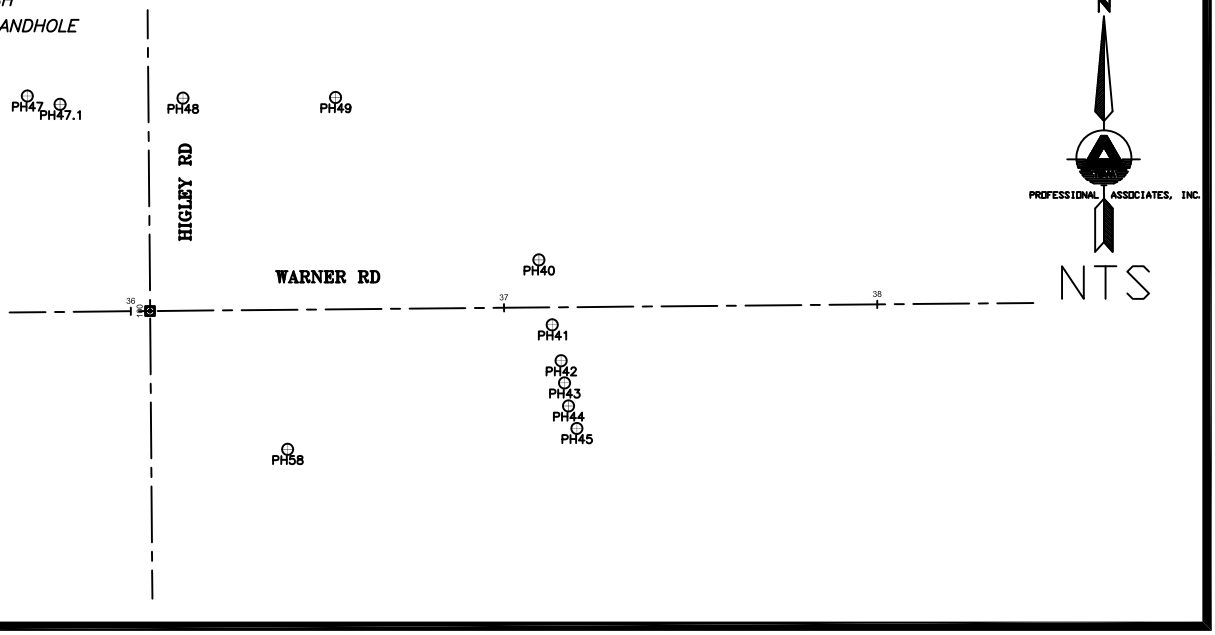
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 43

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **44**
CLIENT HOLE NO.: **44**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: [ ]USER DEFINED [X]NAD83 [X]NAVD88 [ ]NGVD29 [ ]GRID [X]GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

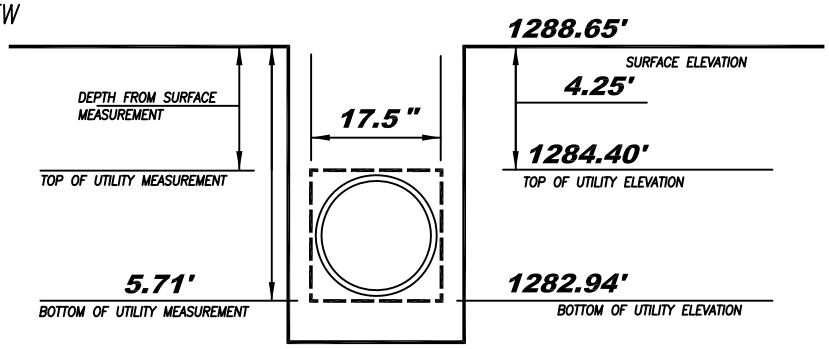
B.M.: [X]GIVEN [ ]ASSUMED [X]SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 37+16.25 20 RT
SURVEYED STATION/OFFSET: **37+15.52 17.84' RT.**
REQUESTED NORTHING: **849902** EASTING: **759893**
SURVEYED NORTHING: **849904.24** EASTING: **759892.19**
ELEVATION OF FINISH SURFACE: **1288.65'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.25'**
ELEVATION OF TOP OF FACILITY: **1284.40'**
WAS REQUESTED UTILITY FOUND? [X]YES [ ]NO
PAVING THICKNESS AND TYPE : **AC 0.35'** SOIL TYPE: **GM**
O.D./TYPE: **17.5 " FM PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

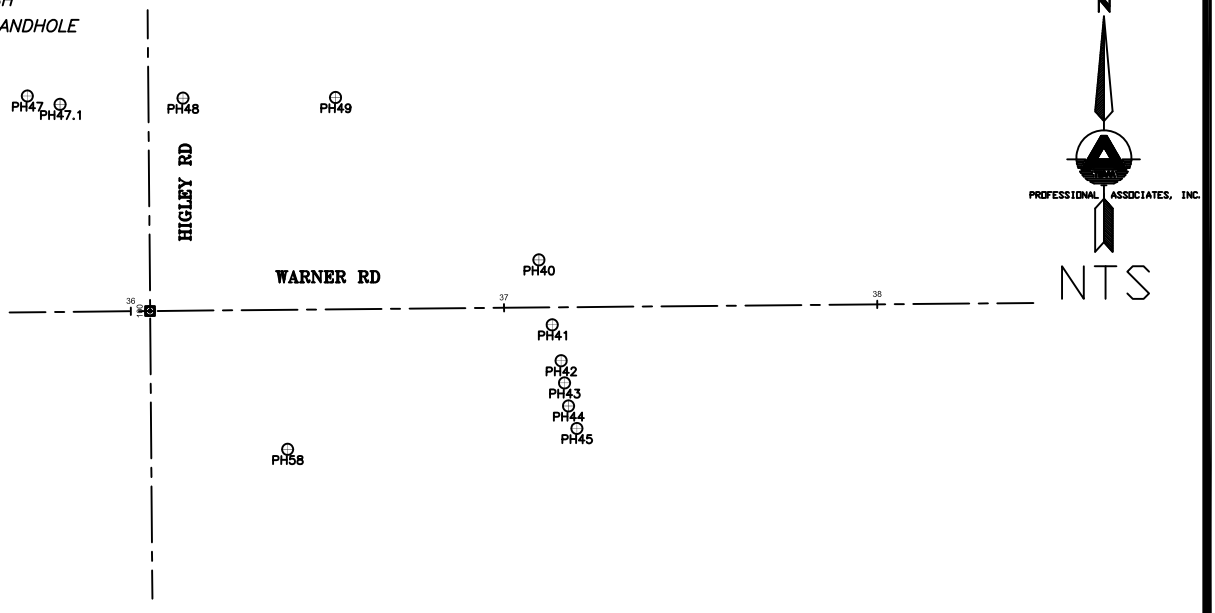
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 44

LEGEND:
- FOUND BRASS CAP FLUSH
- FOUND BRASS CAP IN HANDHOLE
- POTHOLE
- CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **45**
CLIENT HOLE NO.: **45**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

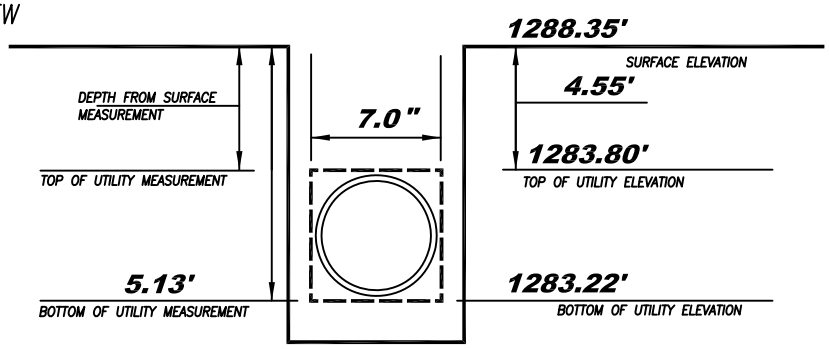
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 37+17.66 26 RT
SURVEYED STATION/OFFSET: **37+16.91 21.22' RT.**
REQUESTED NORTHING: **849896** EASTING: **759896**
SURVEYED NORTHING: **849900.87** EASTING: **759893.60**
ELEVATION OF FINISH SURFACE: **1288.35'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.55'**
ELEVATION OF TOP OF FACILITY: **1283.80'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CL**
O.D./TYPE: **7.0" GAS/PETRO/LP PIPE / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

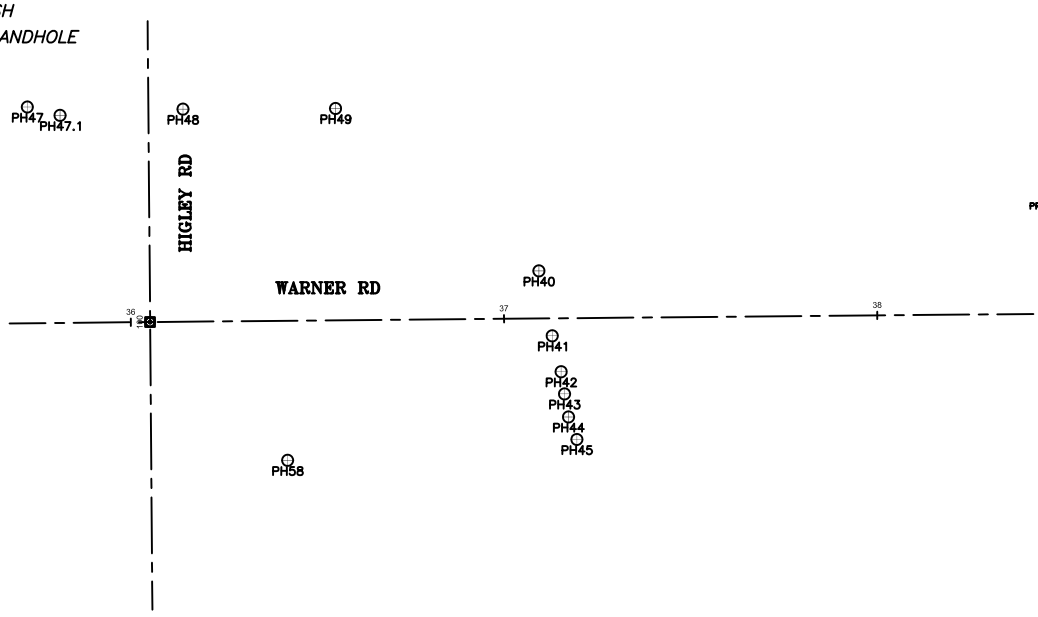
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 45

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: City of Phoenix
TASK ID#: **201400018**
TEST HOLE NO.: **46**
CLIENT HOLE NO.: **46**
DATE DUG: 02/25/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

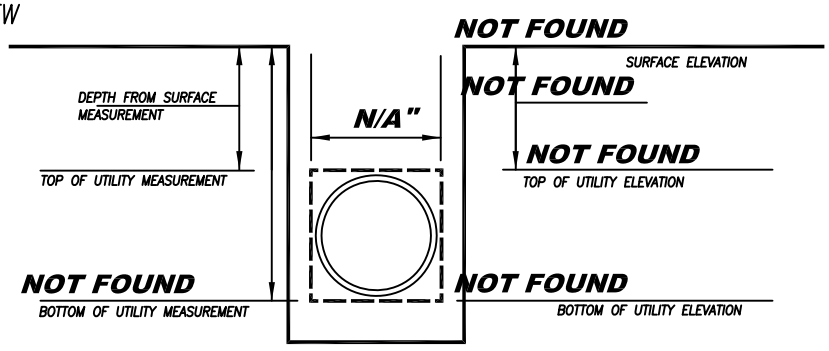
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 37+17.99 28 RT
SURVEYED STATION/OFFSET: **0.0** **0.0** **0.0**
REQUESTED NORTHING: **849895** EASTING: **759895**
SURVEYED NORTHING: **0.0** EASTING: **0.0**
ELEVATION OF FINISH SURFACE: **NOT FOUND**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **NOT FOUND**
ELEVATION OF TOP OF FACILITY: **NOT FOUND**
WAS REQUESTED UTILITY FOUND? ☐YES ☒NO
PAVING THICKNESS AND TYPE : **OR**
O.D./TYPE: **N/A" RW** **O**
MARKER TYPE: **NONE**
SOIL TYPE: **CH**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH
46

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

Comments: ** Not Found ** Went 5' through clay, then air

N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **47**
CLIENT HOLE NO.: **47**
DATE DUG: 02/25/14
REFERENCE#: 101235

DATUM: [ ]USER DEFINED [X]NAD83 [X]NAVD88 [ ]NGVD29 [ ]GRID [X]GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

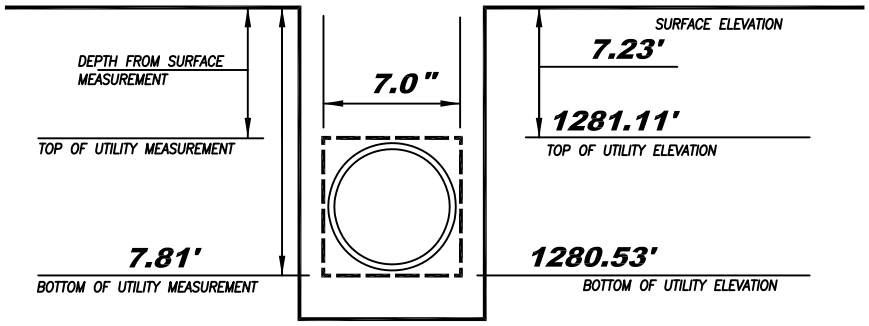
B.M.: [X]GIVEN [ ]ASSUMED [X]SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 100+56.85 28.9LT
SURVEYED STATION/OFFSET: **100+56.41 26.57' LT.**
REQUESTED NORTHING: **849977.70** EASTING: **759752.30**
SURVEYED NORTHING: **849977.27** EASTING: **759754.63**
ELEVATION OF FINISH SURFACE: **1288.34'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.40'**
ELEVATION OF TOP OF FACILITY: **1283.94'**
WAS REQUESTED UTILITY FOUND? [X]YES [ ]NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CL**
O.D./TYPE: **7.0" GAS/PETRO/LP PIPE / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

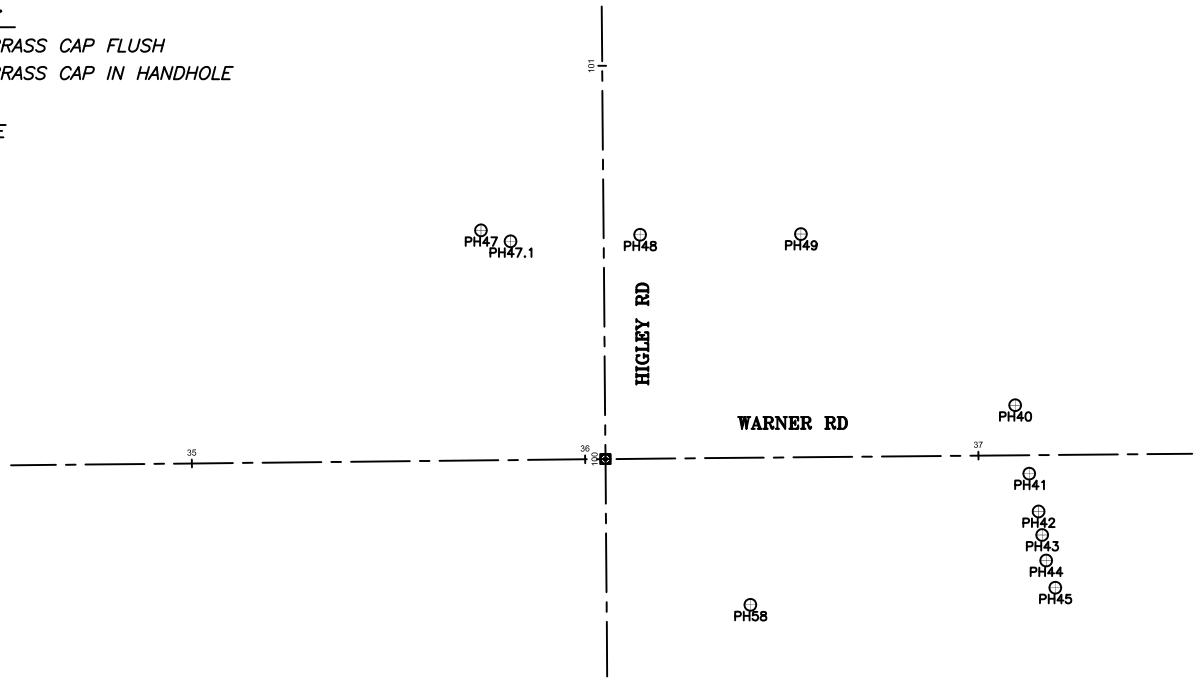
Expires: 09/30/2014

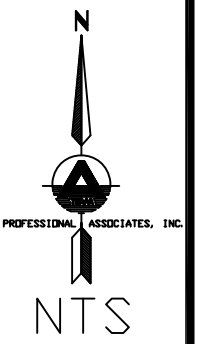
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 47

LEGEND:
- FOUND BRASS CAP FLUSH
- FOUND BRASS CAP IN HANDHOLE
- POTHOLE
- CENTERLINE





1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **47.1**
CLIENT HOLE NO.: **47.1**
DATE DUG: 02/25/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

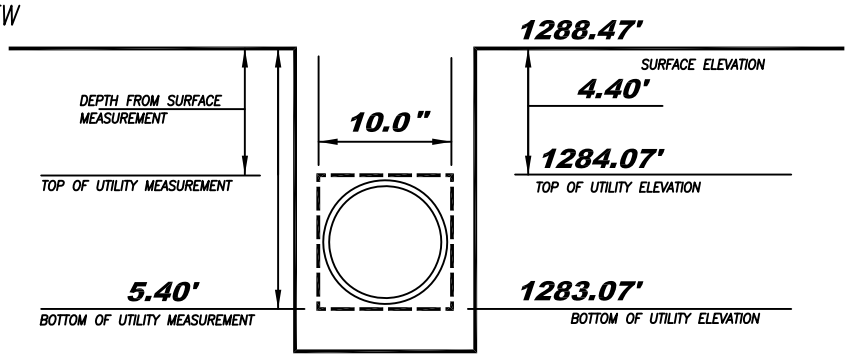
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 100+56 26 LT
SURVEYED STATION/OFFSET: **100+55.56 23.67' LT.**
REQUESTED NORTHING: EASTING:
SURVEYED NORTHING: **849976.44** EASTING: **759757.54**
ELEVATION OF FINISH SURFACE: **1288.47'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.40'**
ELEVATION OF TOP OF FACILITY: **1284.07'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.20'**
O.D./TYPE: **10.0" CABLE TV DUCT / PVC**
MARKER TYPE: **WHISKER**
SOIL TYPE: **CL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

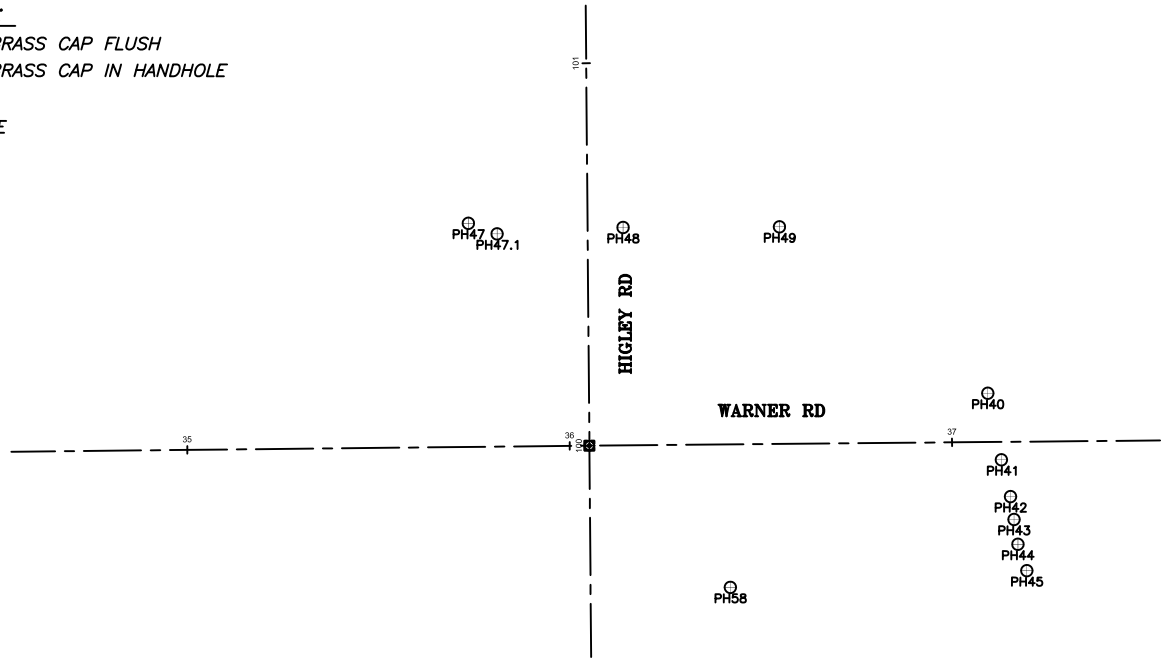
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 47.1

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **48**
CLIENT HOLE NO.: **48**
DATE DUG: 02/25/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

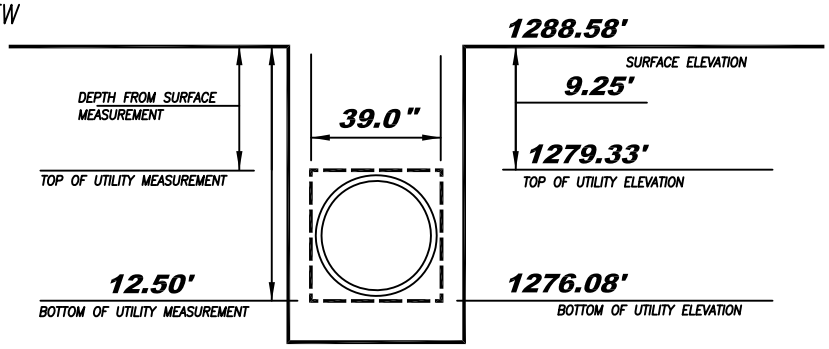
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 100+56.92 9 RT
SURVEYED STATION/OFFSET: **100+56.96 9.28' RT.**
REQUESTED NORTHING: **849978** EASTING: **759791**
SURVEYED NORTHING: **849978.11** EASTING: **759790.47**
ELEVATION OF FINISH SURFACE: **1288.58'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **9.25'**
ELEVATION OF TOP OF FACILITY: **1279.33'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.45'** SOIL TYPE: **GM**
O.D./TYPE: **39.0" WATER PIPE / RC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

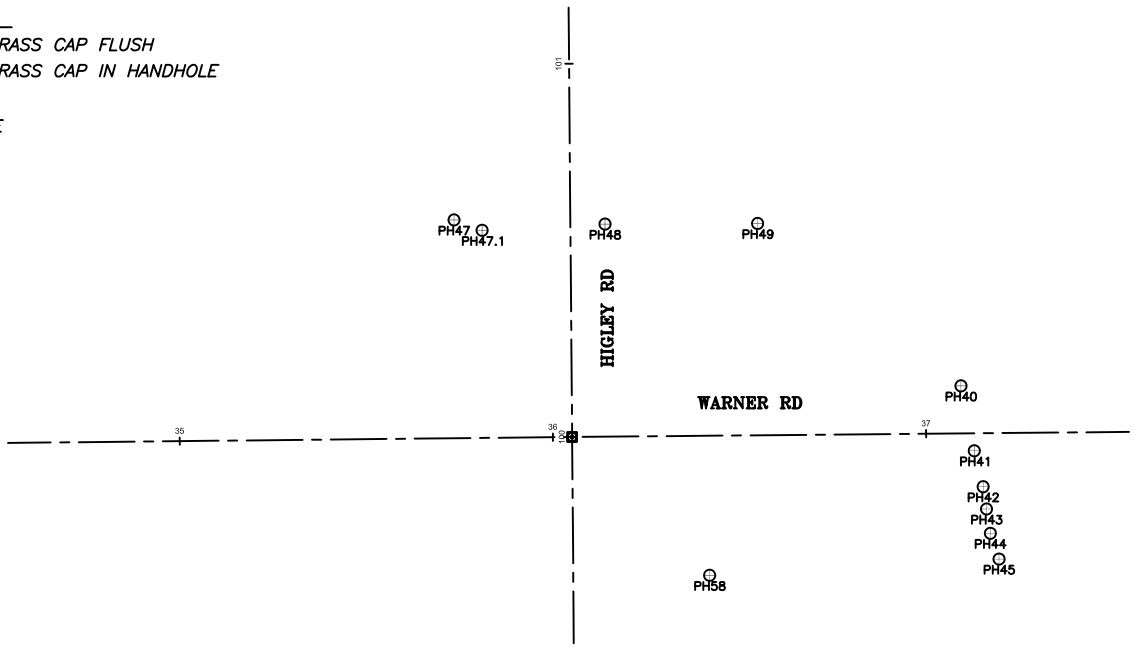
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 48

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



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Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **49**
CLIENT HOLE NO.: **49**
DATE DUG: 02/22/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

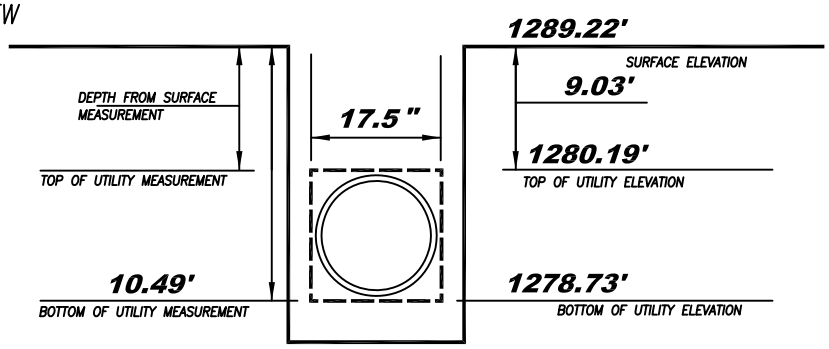
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 100+56.99 50 RT
SURVEYED STATION/OFFSET: **100+56.78 50.16' RT.**
REQUESTED NORTHING: **849979** EASTING: **759831**
SURVEYED NORTHING: **849978.28** EASTING: **759831.36**
ELEVATION OF FINISH SURFACE: **1289.22'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **9.03'**
ELEVATION OF TOP OF FACILITY: **1280.19'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CH**
O.D./TYPE: **17.5 " RW** **PIPE** **/ STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

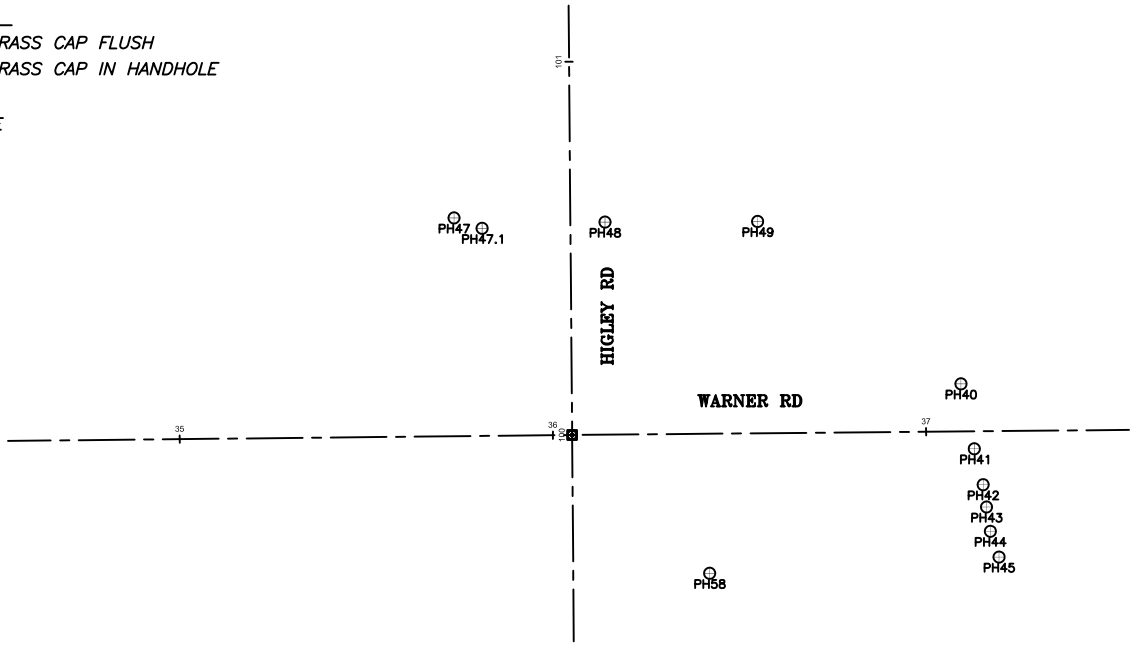
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 49

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
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A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **50**
CLIENT HOLE NO.: **50**
DATE DUG: 02/22/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

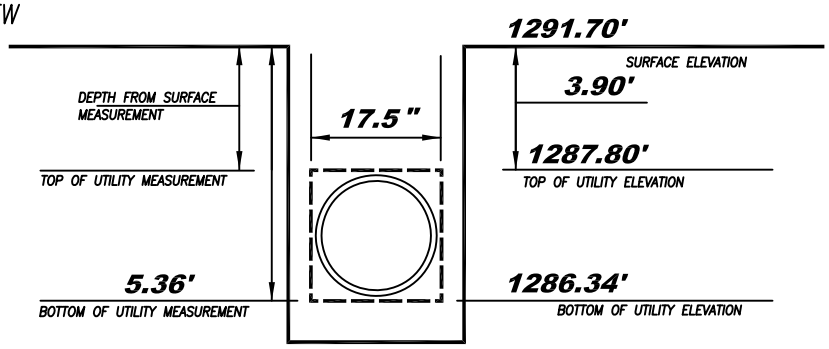
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 48+39.31 12 LT
SURVEYED STATION/OFFSET: **48+40.00 12.51' LT.**
REQUESTED NORTHING: **849944** EASTING: **761016**
SURVEYED NORTHING: **849944.88** EASTING: **761016.34**
ELEVATION OF FINISH SURFACE: **1291.70'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.90'**
ELEVATION OF TOP OF FACILITY: **1287.80'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **17.5 " WATER PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

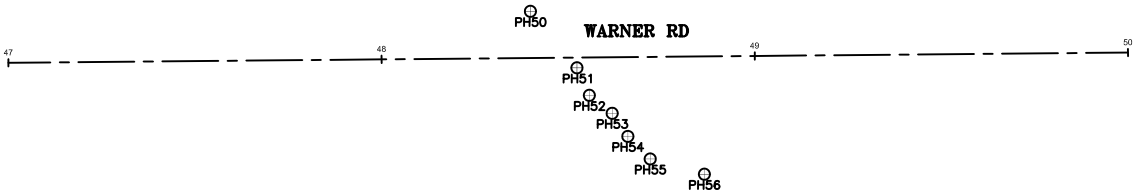
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 50

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **51**
CLIENT HOLE NO.: **51**
DATE DUG: 02/25/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

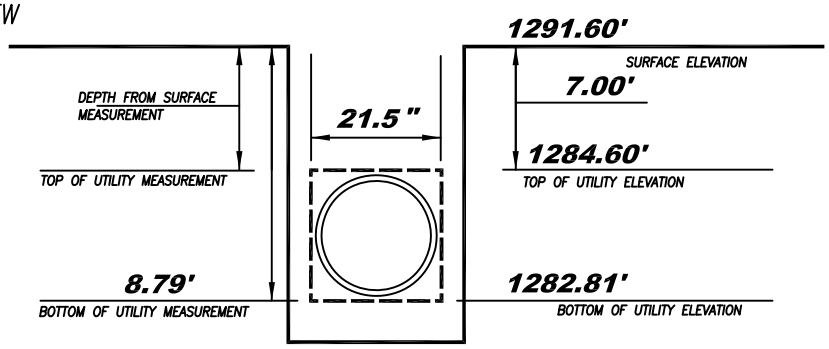
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 48+52.35 4 RT
SURVEYED STATION/OFFSET: **48+52.32 2.74' RT.**
REQUESTED NORTHING: **849929** EASTING: **761029**
SURVEYED NORTHING: **849929.74** EASTING: **761028.81**
ELEVATION OF FINISH SURFACE: **1291.60'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **7.00'**
ELEVATION OF TOP OF FACILITY: **1284.60'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.40'**
SOIL TYPE: **CL**
O.D./TYPE: **21.5 " RW PIPE / PVC**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

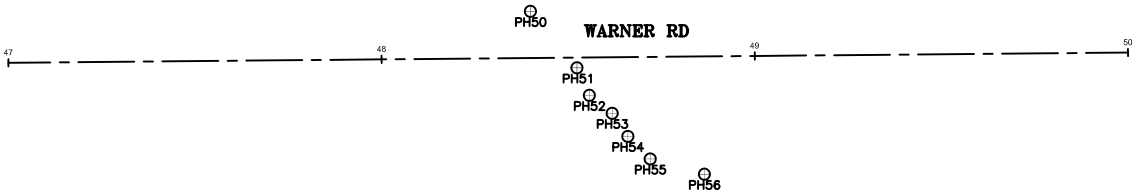
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 51

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **52**
CLIENT HOLE NO.: **52**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

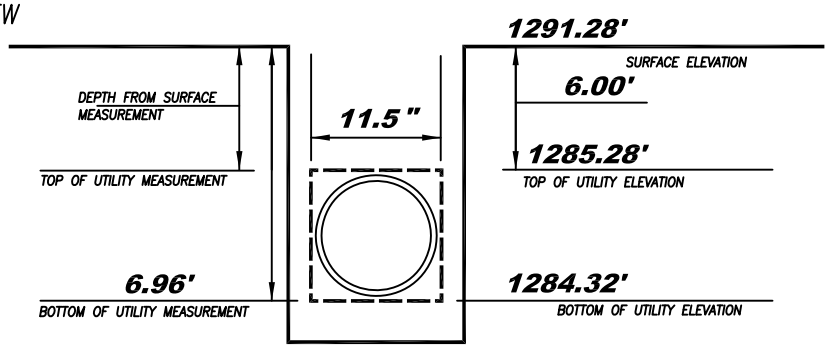
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 48+61.72 15 RT
SURVEYED STATION/OFFSET: **48+60.16 13.33' RT.**
REQUESTED NORTHING: **849917** EASTING: **761038**
SURVEYED NORTHING: **849919.22** EASTING: **761036.74**
ELEVATION OF FINISH SURFACE: **1291.28'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.00'**
ELEVATION OF TOP OF FACILITY: **1285.28'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.40'** SOIL TYPE: **GM**
O.D./TYPE: **11.5" FM PIPE / STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

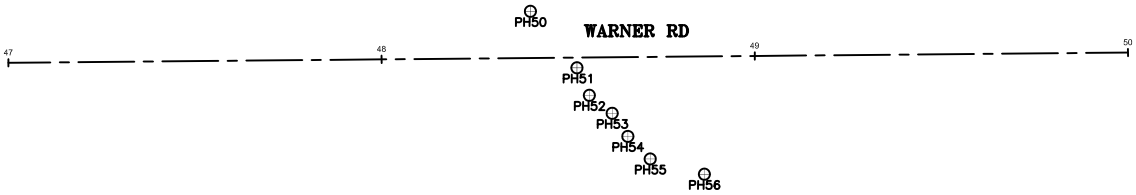
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 52

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **53**
CLIENT HOLE NO.: **53**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

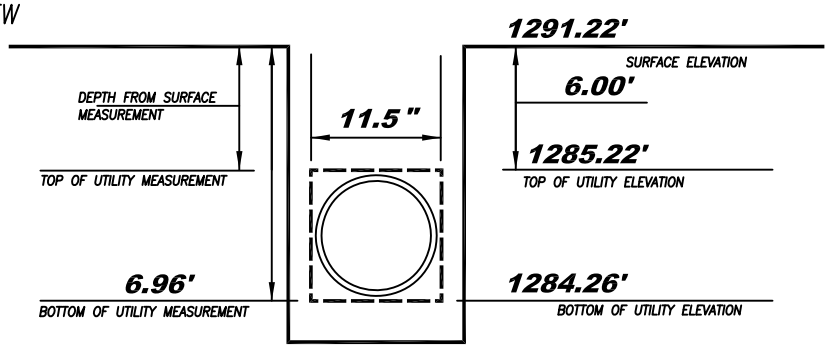
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 48+63.48 17 RT
SURVEYED STATION/OFFSET: **48+61.65 15.01' RT.**
REQUESTED NORTHING: **849915** EASTING: **761040**
SURVEYED NORTHING: **849917.56** EASTING: **761038.25**
ELEVATION OF FINISH SURFACE: **1291.22'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **6.00'**
ELEVATION OF TOP OF FACILITY: **1285.22'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **AC 0.30'** SOIL TYPE: **GM**
O.D./TYPE: **11.5 " FM** **PIPE** **/ STL**
MARKER TYPE: **PK NAIL**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

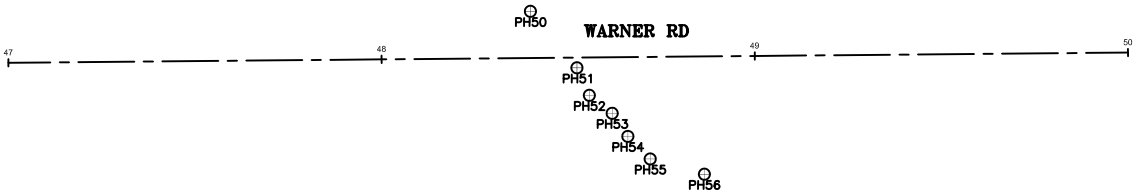
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 53

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **54**
CLIENT HOLE NO.: **54**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

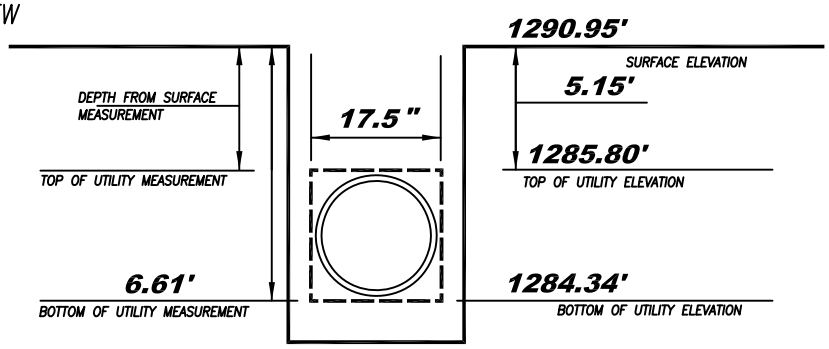
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 48+65.38 20 RT
SURVEYED STATION/OFFSET: **48+62.83 16.88' RT.**
REQUESTED NORTHING: **849913** EASTING: **761042**
SURVEYED NORTHING: **849915.70** EASTING: **761039.44**
ELEVATION OF FINISH SURFACE: **1290.95'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.15'**
ELEVATION OF TOP OF FACILITY: **1285.80'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **17.5 " FM** **PIPE** **/ STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

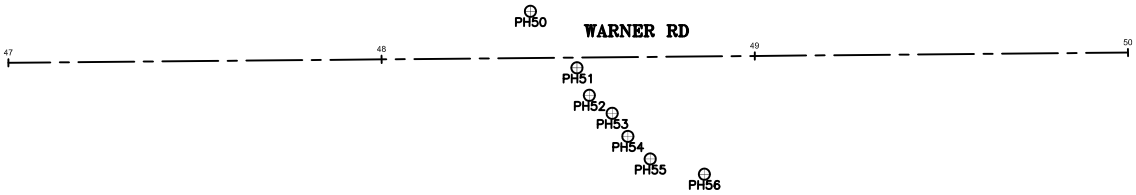
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 54

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **55**
CLIENT HOLE NO.: **55**
DATE DUG: 02/22/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

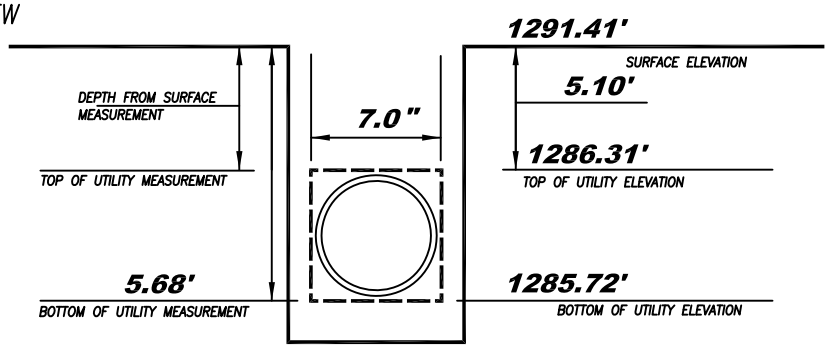
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 48+82.90 26 RT
SURVEYED STATION/OFFSET: **48+68.76 22.99' RT.**
REQUESTED NORTHING: **849907** EASTING: **761047**
SURVEYED NORTHING: **849909.64** EASTING: **761045.43**
ELEVATION OF FINISH SURFACE: **1291.41'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.10'**
ELEVATION OF TOP OF FACILITY: **1286.31'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE:
O.D./TYPE: **7.0" GAS/PETRO/LP PIPE / PE**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 55

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
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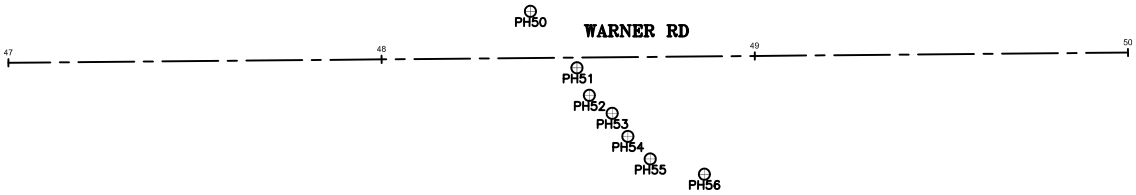


1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **56**
CLIENT HOLE NO.: **56**
DATE DUG: 02/22/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

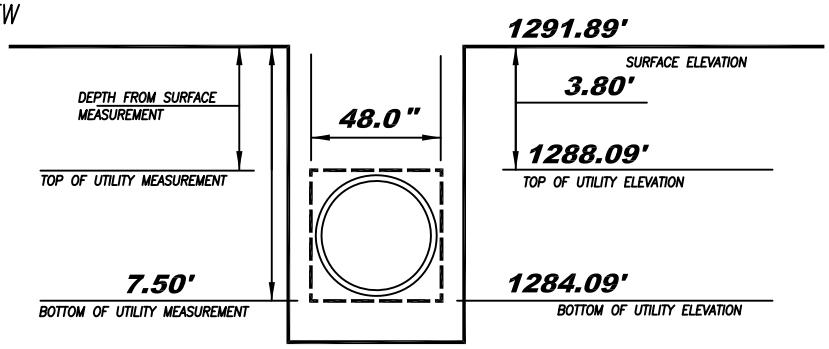
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 48+71.84 28 RT
SURVEYED STATION/OFFSET: **48+83.24 27.21' RT.**
REQUESTED NORTHING: **849905** EASTING: **761049**
SURVEYED NORTHING: **849905.56** EASTING: **761059.94**
ELEVATION OF FINISH SURFACE: **1291.89'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.80'**
ELEVATION OF TOP OF FACILITY: **1288.09'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : SOIL TYPE:
O.D./TYPE: **48.0" RW** **PIPE** **/ EN**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

Expires: 09/30/2014

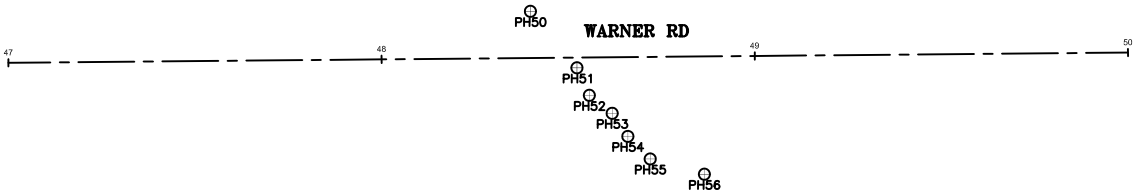
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 56

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE

N
PROFESSIONAL ASSOCIATES, INC.
NTS



1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019
www.ATEAM.net

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **57**
CLIENT HOLE NO.: **57**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: [ ]USER DEFINED [X]NAD83 [X]NAVD88 [ ]NGVD29 [ ]GRID [X]GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

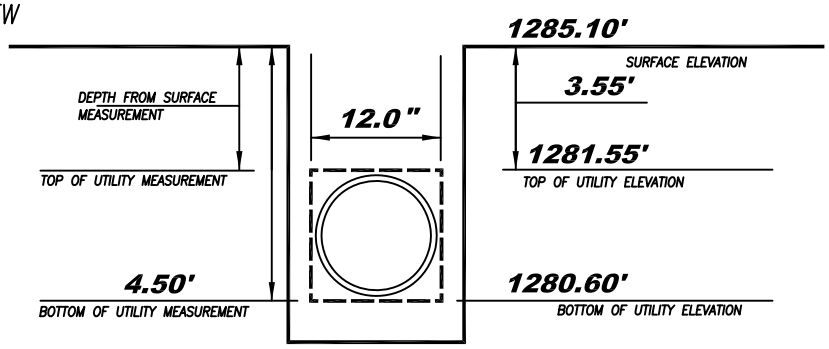
B.M.: [X]GIVEN [ ]ASSUMED [X]SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 30+09.92 77 RT
SURVEYED STATION/OFFSET: **30+09.92 77.19' RT.**
REQUESTED NORTHING: **849838** EASTING: **759187**
SURVEYED NORTHING: **849837.60** EASTING: **759187.28**
ELEVATION OF FINISH SURFACE: **1285.10'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **3.55'**
ELEVATION OF TOP OF FACILITY: **1281.55'**
WAS REQUESTED UTILITY FOUND? [X]YES [ ]NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **12.0" ELECTRICAL DUCT / PVC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

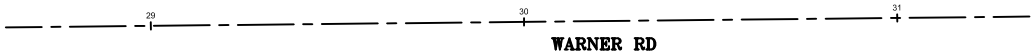
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 57

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



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PROFESSIONAL ASSOCIATES, INC.
NTS

PH57

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **58**
CLIENT HOLE NO.: **58**
DATE DUG: 02/25/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

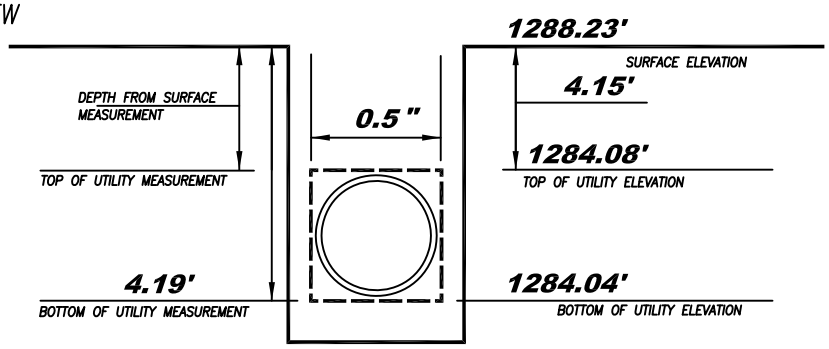
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 99+24.12 35 RT
SURVEYED STATION/OFFSET: **99+62.66 36.55' RT.**
REQUESTED NORTHING: **849846** EASTING: **759817**
SURVEYED NORTHING: **849884.02** EASTING: **759818.51**
ELEVATION OF FINISH SURFACE: **1288.23'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.15'**
ELEVATION OF TOP OF FACILITY: **1284.08'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **CL**
O.D./TYPE: **0.5 " TELEPHONE CABLE / Cable**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

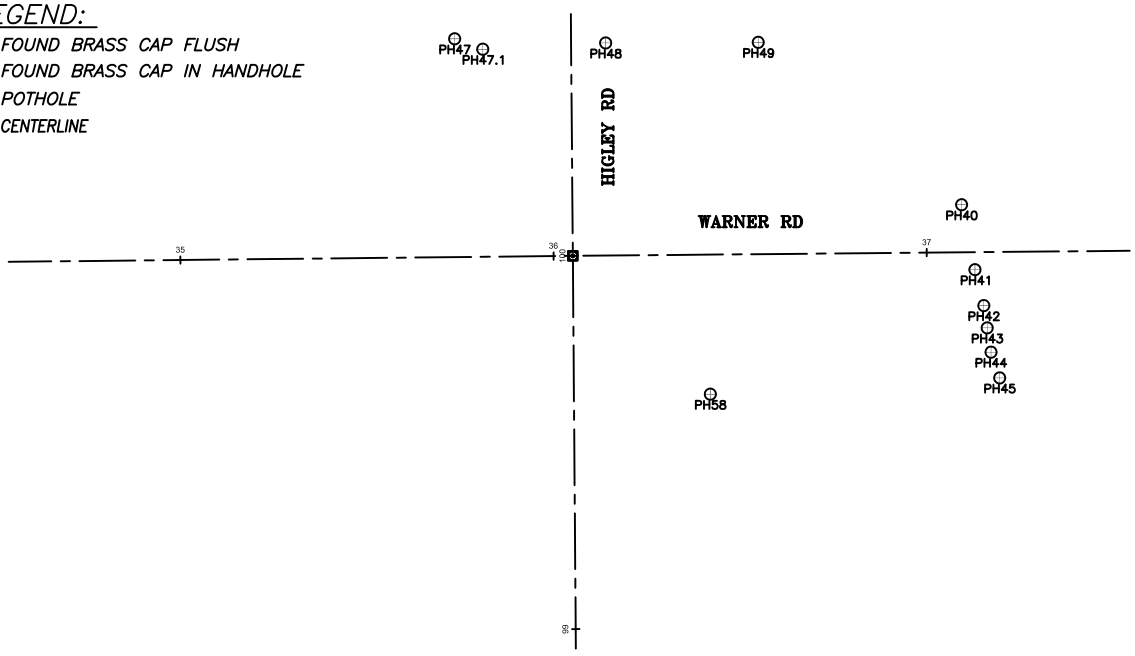
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 58

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **59**
CLIENT HOLE NO.: **59**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29
☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

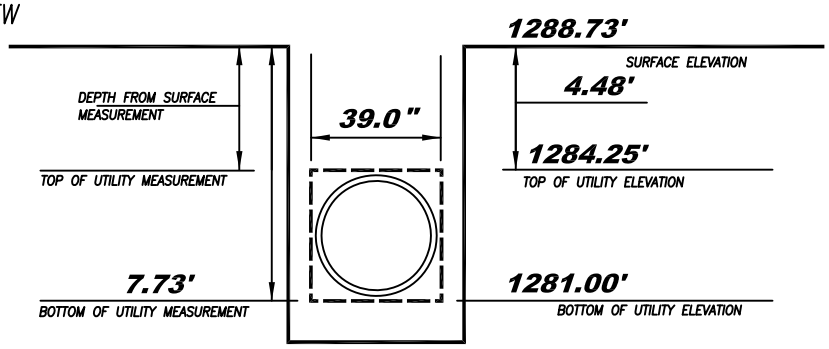
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 106+50.00 20 RT
SURVEYED STATION/OFFSET: **106+49.95 18.67' RT.**
REQUESTED NORTHING: **850571** EASTING: **759796**
SURVEYED NORTHING: **850571.17** EASTING: **759794.86**
ELEVATION OF FINISH SURFACE: **1288.73'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **4.48'**
ELEVATION OF TOP OF FACILITY: **1284.25'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GW**
O.D./TYPE: **39.0" WATER PIPE / RC**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N.
EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

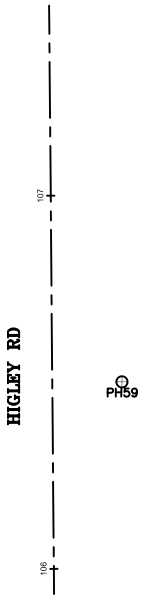
Expires: 09/30/2014

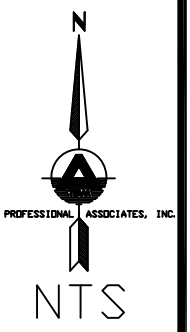
CROSS SECTIONAL VIEW
NOT TO SCALE



PH 59

LEGEND:
⊙ FOUND BRASS CAP FLUSH
◙ FOUND BRASS CAP IN HANDHOLE
⊕ POTHOLE
℄ CENTERLINE





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1920 W. Peoria Ave.
Phoenix, Arizona 85029
Phone: 602.906.0020
Fax: 602.906.0019

A TEAM P. A. INC. PROJ.#: 2110.4A
CUSTOMER: Dibble Engineering
TASK ID#: **201400018**
TEST HOLE NO.: **60**
CLIENT HOLE NO.: **60**
DATE DUG: 02/21/14
REFERENCE#: 101235

DATUM: ☐USER DEFINED ☒NAD83 ☒NAVD88 ☐NGVD29 ☐GRID ☒GROUND
PARTY CHIEF: **HAL EPPERSON**
INSTR. PERSON: **TRIMBLE 5800**
CHECKED BY: **HAL EPPERSON**
GENERAL LOCATION: **Higley & Warner**
SIZE/TYPE/MATERIAL ANTICIPATED: **N/A**
PAVING CONDITION BEFORE WORK: **Fair**

ELEVATION B.M.: **1288.44'** DESCRIPTION: **BRASS CAP IN HAND HOLE @ INT. WARNER RD & HIGLEY RD**

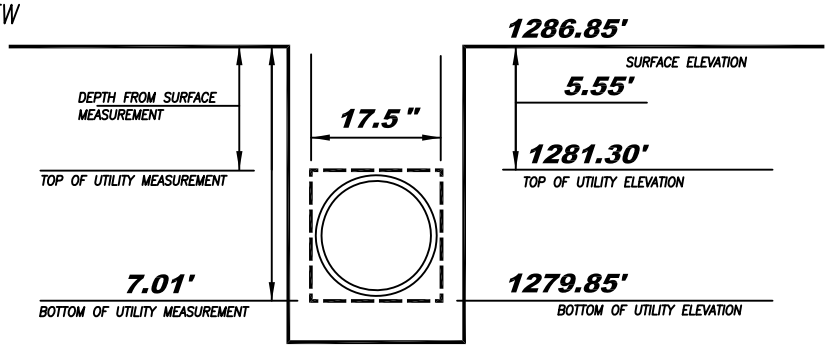
B.M.: ☒GIVEN ☐ASSUMED ☒SURVEYED BY A TEAM P.A., INC.
REQUESTED STATION/OFFSET: 122+50.00 50 RT
SURVEYED STATION/OFFSET: **122+50.00 49.72' RT.**
REQUESTED NORTHING: **852171** EASTING: **759813**
SURVEYED NORTHING: **852171.42** EASTING: **759812.41**
ELEVATION OF FINISH SURFACE: **1286.85'**
DIFF. OF FIN. SURF. TO TOP OF FACILITY: **5.55'**
ELEVATION OF TOP OF FACILITY: **1281.30'**
WAS REQUESTED UTILITY FOUND? ☒YES ☐NO
PAVING THICKNESS AND TYPE : **OR** SOIL TYPE: **GM**
O.D./TYPE: **17.5 " RW** **PIPE** **/ STL**
MARKER TYPE: **WHISKER**

CFEDS #1047

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
21765
HAROLD N. EPPERSON
Date Signed 02/28/2014
ARIZONA, U.S.A.

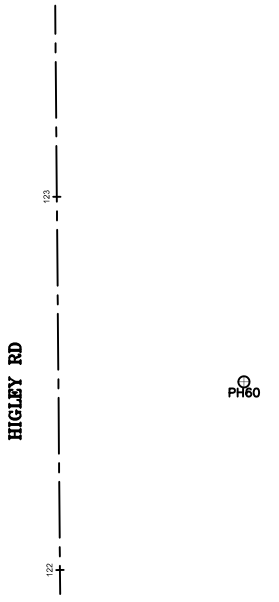
Expires: 09/30/2014

CROSS SECTIONAL VIEW
NOT TO SCALE



PH 60

LEGEND:
- ⊙ FOUND BRASS CAP FLUSH
- ◙ FOUND BRASS CAP IN HANDHOLE
- ⊕ POTHOLE
- ℄ CENTERLINE



N
PROFESSIONAL ASSOCIATES, INC.
NTS

APPENDIX B

GEOTECHNICAL REPORT

Ninyo & Moore
Contractor's License No. ROC206210
Geotechnical and Environmental Sciences Consultants

GEOTECHNICAL EVALUATION
HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PREPARED FOR:
Dibble Engineering
7500 North Dreamy Draw Drive, Suite 200
Phoenix, Arizona 85020-4660

PREPARED BY:
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
3202 East Harbour Drive
Phoenix, Arizona 85034

December 13, 2013
Project No. 603900001

December 13, 2013
Project No. 603900001

Ms. Susan Detwiler, PE
Dibble Engineering
7500 N. Dreamy Draw Drive, Suite 200
Phoenix, Arizona 85020-4660

Subject: Geotechnical Evaluation
Higley and Warner Intersection Improvements
Gilbert, Arizona

Dear Ms. Detwiler:

In accordance with our proposal and your authorization, Ninyo & Moore has performed a geotechnical evaluation for the above-referenced site. The attached report describes our evaluation methodology and presents our findings, conclusions, and recommendations regarding the geotechnical conditions at the project site.

We appreciate the opportunity to be of service to you during this phase of the project.

Sincerely,
NINYO & MOORE

Kevin L. Porter, PE
Senior Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 41716 KEVIN L. PORTER Date Signed 12-13-13 ARIZONA U.S.A.

EXPIRES 12/31/13

Soumitra Guha, PhD, PE, GE
Principal Engineer

KLP/SG/clj

Distribution: (1) Addressee (Electronic Copy)

TABLE OF CONTENTS

1. INTRODUCTION

In accordance with our proposal, and your authorization, we have performed a geotechnical evaluation for the Higley and Warner Intersection Improvements project in Gilbert, Arizona. The purpose of our evaluation was to assess the subsurface conditions at the project site in order to formulate geotechnical recommendations for design and construction. This report presents the results of our evaluation along with our geotechnical conclusions and recommendations regarding the proposed construction.

2. SCOPE OF SERVICES

The scope of our services for the project generally included:

- Reviewing available as-built documents, geologic mapping, and aerial photographs of the project area.
- Preparing a geotechnical boring plan for review and approval prior to proceeding with the work.
- Obtaining right-of-entry permits through the Town of Gilbert to perform the field work.
- Conducting a visual survey of the existing pavement conditions.
- Establishing the test locations in the field and arranging for the mark-out of underground utilities through Arizona Blue Stake.
- Drilling, logging, and sampling eleven small-diameter exploratory borings to depths of approximately 5 to 10 feet below ground surface (bgs). The boring logs are presented in Appendix A.
- Performing laboratory tests on selected samples obtained from our borings to evaluate the in-situ moisture content and dry density, gradation analysis, Atterberg limits, consolidation (response-to-wetting), and corrosivity characteristics (including pH, minimum electrical resistivity, and soluble sulfate and chloride contents). The results of the laboratory testing are presented on the boring logs and/or in Appendix B.
- Preparing this report presenting our findings, conclusions, and recommendations regarding the design and construction of the project.

3. SITE DESCRIPTION

The project site is located in Sections 14, 15, 22, and 23 of Township 1 South, Range 6 East of the Gila-Salt River Baseline and Meridian in Gilbert, Arizona. The approximate location of the site is depicted on Figure 1. At the time of our evaluation, Higley Road was a north-south trending roadway and Warner Road was an east-west trending roadway, generally consisting of one lane in each direction of travel. The north, south, and west legs of the intersection have been previously improved to include various turn lanes, and there is a commercial development at the southwest corner of the intersection. The surrounding topography is relatively flat and generally consists of scattered residential and agricultural lands. Open channel concrete-lined irrigation facilities are present, generally on the north side of Warner Road and on the west side of Higley Road, in the agricultural areas. The State Route 202 (SR202) freeway is located near the southern limits of the project.

According to the *Higley, Arizona-Maricopa County, 7.5-Minute United States Geological Survey (USGS) Topographic Quadrangle Map (2011),* the elevation at the project site is roughly 1,290 feet relative to mean sea level (MSL). Based on information presented on this topographic quadrangle map, the regional topography at the site generally slopes from the east down to the west.

Several aerial photographs from the Flood Control District of Maricopa County were reviewed for this project. A 1937 aerial photograph depicted agricultural land and unpaved roads. A 1949 aerial photograph depicted a residential structure at the south end of the project and on the east side of Higley Road, south of Warner Road. An aerial photograph from 1993 depicted paved roadways. A 1998 aerial photograph depicted increased residential development to the north and west of the project. A 2002 photograph depicted improvements to the intersection and a 2004 aerial photograph depicted residential development south of the project. A 2006 aerial photograph depicted ongoing residential development, generally east of the project. The SR202 roadway was also depicted in this photograph. A 2008 aerial photograph depicted the development at the southwest corner of Higley and Warner Roads and a 2009 aerial photograph depicted the site as being similar to its current condition.

4. PROPOSED CONSTRUCTION

The project generally includes improvements to the intersection of Higley Road and Warner Road. It is our understanding that this project will include roadway widening to accommodate six (6) through lanes, bike lanes, dual left turn lanes, and dedicated right turn lanes in each leg of the intersection. This includes reconstruction of both roadways approaching each intersection with asphaltic concrete, and pavement rehabilitation/replacement in selected locations. In addition, storm drain facilities, utility connections, and relocation of Roosevelt Water Conservation District (RWCD) and private irrigation facilities may be included.

5. FIELD EXPLORATION AND LABORATORY TESTING

On August 15 and 27, 2013, Ninyo & Moore conducted a subsurface exploration at the project site in order to evaluate the existing subsurface conditions and to collect soil samples for laboratory testing. Our exploration consisted of drilling, logging, and sampling of eleven small-diameter borings, denoted as B-1 through B-6 and C-1 through C-5. The borings were advanced using a Diedrich D-50 or CME-55 truck-mounted drill rig equipped with hollow-stem augers to approximately 5 to 10 feet bgs. Bulk and relatively undisturbed soil samples were collected at selected intervals. Detailed descriptions of the soils encountered are presented on the boring logs in Appendix A. The elevations noted on the boring logs were estimated from available topographic information. The general locations of the borings are depicted on Figure 2.

Ninyo & Moore personnel logged the borings in general accordance with the Unified Soil Classification System (USCS) and American Society for Testing and Materials (ASTM) D 2488 by observing cuttings and drive samples. Collected ring samples were trimmed in the field, wrapped in plastic bags, and placed in cylindrical plastic containers to retain in-place moisture conditions. Similarly, the Standard Penetration Test (SPT) and bulk samples were sealed in plastic bags to retain their approximate in-place moisture.

The soil samples collected from our drilling activities were transported to the Ninyo & Moore laboratory in Phoenix, Arizona, for geotechnical laboratory testing. The testing included in-situ

moisture content and dry density, gradation analyses, Atterberg limits, consolidation (response-to-wetting) and corrosivity characteristics (including pH, minimum electrical resistivity, and soluble sulfate and chloride contents). The results of the in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. A description of each laboratory test method and the remainder of the test results are presented in Appendix B.

6. GEOLOGY AND SUBSURFACE CONDITIONS

The following sections describe the geologic and subsurface conditions at the site.

6.1. Geologic Setting

The project site is situated along the boundary of the Sonoran Desert Section of the Basin and Range Physiographic Province and the Transition Zone (also referred to as the Central Highlands), which is typified by broad alluvial valleys separated by steep, discontinuous, subparallel mountain ranges. The mountain ranges generally trend north-south and northwest-southeast. The basin floors consist of alluvium with thickness extending to several thousands of feet.

The basins and surrounding mountains were formed approximately 10 to 18 million years ago during the mid- to late-Tertiary age. Extensional tectonics resulted in the formation of horsts (mountains) and grabens (basins) with vertical displacement along high-angle normal faults. Intermittent volcanic activity also occurred during this time. The surrounding basins filled with alluvium from the erosion of the surrounding mountains, as well as from river deposition. Coarser-grained alluvial material was deposited at the margins of the basins near the mountains.

The surficial geology of the site is described as being Holocene (less than 10,000 years) to Late Pleistocene-age (10,000 to 750,000 years) alluvial deposits generally consisting of clay, silt, sand, and gravel (Pearthree and Huckleberry, 1994). The United States Department of Agriculture (USDA) Web Soil Survey described the site as generally containing the Vecont

clay, which consists of clay or clay loam. Loam is an agricultural soil classification that refers to a soil comprised of a mixture of clay, silt, and sand.

6.2. Subsurface Conditions

Our knowledge of the subsurface conditions at the project site is based on our field exploration and laboratory testing, and our understanding of the general geology of the area. The following sections provide a generalized description of the materials encountered. More detailed descriptions are presented on the boring logs in Appendix A.

6.2.1. Asphalt Concrete and Aggregate Base

Asphalt concrete (AC) was encountered at the surface of some of our borings and was approximately 4.0 to 5.0 inches thick. Aggregate base (AB) was encountered underlying the AC described above and was approximately 0 to 13.5 inches thick in our borings. The AC and AB thicknesses from our borings, where encountered, are tabulated below.

Table 1 – Existing Pavement Section

Boring No.	Roadway	AC Thickness (inch)*	AB Thickness (inch)*	Total Thickness (inch)*
C-1	Higley Road	5.0	-	5.0
C-2	Higley Road	4.5	4.5	9.0
C-3	Higley Road	5.25	4.75	10.0
C-4	Higley Road	4.0	13.5	17.5
C-5	Warner Road	5.25	2.75	8.0
B-3	Warner Road	3.75	7.75	11.5
B-4	Warner Road	4.25	7.25	11.5

Note:
*Thicknesses are approximate.

6.2.2. Fill

Artificial fill was encountered at the ground surface or beneath the pavement section in many of our borings. The fill generally extended to depths ranging from about 3 to 5.5

feet bgs in our borings. The fill generally consisted of very loose to medium dense clayey sand and stiff to hard sandy clay with varying amounts of gravel.

6.2.3. Alluvium

Native alluvial soils were encountered at the ground surface or underlying the pavement sections and/or fill materials described above and extended to the total explored depths of our borings. The alluvium generally consisted of relatively medium dense clayey sand with various amounts of gravel and very stiff to hard sandy lean and fat clay in our borings. Scattered to numerous caliche nodules were also observed in the alluvium in our borings.

6.3. Groundwater

Groundwater was not encountered in our borings. Based on well data provided by the Arizona Department of Water Resources (ADWR, 2013), the depth to the regional groundwater table, as measured in wells situated near the site, has been estimated to be as shallow as about 75 feet bgs. Groundwater levels may fluctuate due to the close proximity to natural drainages, any adjacent ditches and canals, seasonal variations, irrigation, groundwater withdrawal or injection, and other factors. In general, groundwater is not anticipated to be a constraint to the construction of this project. However, due to the adjacent irrigation facilities, perched groundwater conditions may be encountered and should be anticipated during construction.

7. GEOLOGIC HAZARDS

The following sections describe potential geologic hazards at the site such as land subsidence and earth fissures and faulting.

7.1. Land Subsidence and Earth Fissures

Groundwater depletion, due to groundwater pumping, has caused land subsidence and earth fissures in numerous alluvial basins in Arizona. It has been estimated that subsidence has affected more than 3,000 square miles and has caused damage to a variety of engineered structures and agricultural land (Schumann and Genualdi, 1986). From 1948 to 1983, excessive groundwater withdrawal has been documented in several alluvial valleys where groundwater levels have been reportedly lowered by up to 500 feet. With such large depletions of groundwater, the alluvium has undergone consolidation resulting in large areas of land subsidence.

In Arizona, earth fissures are associated with land subsidence and pose an on-going geologic hazard. Earth fissures generally form near the margins of geomorphic basins where significant amounts of groundwater depletion have occurred. Reportedly, earth fissures have also formed due to tensional stress caused by differential subsidence of the unconsolidated alluvial materials over buried bedrock ridges and irregular bedrock surfaces (Schumann and Genualdi, 1986).

Based on our field reconnaissance and review of the referenced materials, there are no known earth-fissures underlying the project site. The closest documented earth fissures to the site are located approximately 5 miles to the northeast and about 9 miles to the south of the site (Arizona Geological Survey, 2008). Continued groundwater withdrawal in the area may result in subsidence and the formation of new fissures or the extension of existing fissures. While the future occurrence of land subsidence and earth fissures cannot accurately be predicted, these phenomena are not expected to be a constraint to the construction of this project.

7.2. Faulting

The site lies within the Sonoran zone, which is a relatively stable tectonic region located in southwestern Arizona, southeastern California, southern Nevada, and northern Mexico (Euge et al., 1992). This zone is characterized by sparse seismicity and few Quaternary faults. Based on our field observations, review of pertinent geologic data, and analysis of

aerial photographs, faults are not located on or adjacent to the property. The closest fault to the site is the Sugarloaf Fault Zone, situated approximately 32 miles to the northeast of the site (Pearthree, 1998). The Sugarloaf Fault Zone is a series of northwest striking semi-continuous normal faults that dip to the east. Recent movement along this fault is estimated to be less than 130,000 years ago during the Upper Pleistocene epoch. The slip-rate category of this fault is less than 0.2 millimeters per year (Pearthree, 1998).

8. CONCLUSIONS

Based on the results of our subsurface evaluation, laboratory testing, and data analysis, it is our opinion that the proposed construction is feasible from a geotechnical standpoint, provided that the recommendations of this report are incorporated into design and construction of the proposed project, as appropriate. Geotechnical considerations include the following:

- The on-site surface soils should generally be excavatable to the anticipated earthwork depths with heavy-duty earth moving construction equipment in good working condition.
- Imported soils and soils generated from on-site excavation activities that exhibit a relatively low plasticity and very low-to-low expansion potential can generally be used as engineered fill. Some of the on-site materials may meet this criteria.
- The on-site soils include medium to high plasticity clays, which are sensitive to moisture content fluctuations and may be difficult to compact at higher moisture contents.
- Given the previous agricultural activities near the site, the upper several feet of alluvium is anticipated to be loose or soft and call for subgrade improvement. New pavements and flatwork should be founded on improved subgrade as described in Section 9.1.9.
- We estimate an earthwork (shrinkage) factor of 10 to 20 percent if the on-site soils are re-used as engineered fill.
- Groundwater was not observed in our borings. The regional groundwater table has been estimated to be as shallow as about 75 feet bgs near the site, based on the nearby well data. However, due to adjacent irrigation facilities, perched groundwater conditions may be encountered.
- No known geologic hazards are situated immediately adjacent to or below the surface at the site.

- Corrosivity test results indicate that subgrade soils at the site are considered to be generally corrosive to ferrous materials, and the sulfate content of the soils present a negligible sulfate exposure to concrete.

9. RECOMMENDATIONS

The following sections present our geotechnical recommendations for the proposed construction. An additional geotechnical evaluation should be conducted when the details for the proposed construction are available.

9.1. Earthwork

In general, the specifications contained in the latest revisions to Maricopa Association of Governments (MAG) and any Town of Gilbert amendments are expected to apply, except as noted in the following sections.

9.1.1. Excavations

Our evaluation of the excavation characteristics of the on-site materials is based on the results of our exploratory borings, site observations, and our experience with similar materials. In our opinion, the excavation of near-surface on-site materials can generally be accomplished with heavy-duty earthmoving or excavation equipment in good operating condition. As previously described above, scattered caliche nodules were encountered in our borings. This may slow the rate and/or call for more aggressive excavation techniques depending on the actual degree of cementation encountered during construction. It should be noted that due to the presence of existing utilities and the relatively wide spacing of our soil borings, excavation conditions different from those encountered in our borings may be encountered during construction.

9.1.2. Trench Sloping and Shoring

The contractor should provide safely sloped excavations or an adequately constructed and braced shoring system, in compliance with the project specifications and/or

Occupational Safety and Health Administration (OSHA) regulations, for employees working in excavations that may expose them to the danger of moving ground. Reducing the inclination of the sidewalls of the excavations, where feasible, may increase the stability of the excavations. If construction or earth material is stored or equipment is operated near an excavation, flatter slope geometry or stronger shoring should be used during construction. The OSHA regulations provide trench sloping and shoring design parameters for trenches up to 20 feet deep based on the soil types encountered. Trenches over 20 feet deep should be designed by the contractor's engineer based on alignment-specific geotechnical analyses. For planning purposes and according to OSHA soil classifications, a "Type C" soil should be considered due to the presence of surface fills, low blow-count soils, interbedded layers of granular soils, and the anticipated roadway vibrations. Upon making the excavations, soil classification and excavation performance should be evaluated in the field by the geotechnical consultant in accordance with the OSHA regulations.

Based upon the soil characteristics, the side slope configurations, and the anticipated width of the excavations, we are of the opinion that a temporary earth retention system may need to be incorporated for construction of much of this project. These temporary earth retention systems typically include braced systems, such as trench boxes or shields with internal supports, or cantilever systems like soldier piles and lagging.

Due to the heterogeneous nature of the site and the presence of existing utilities, soils different than those encountered in our boring should be anticipated during construction. In addition, because the improvements are near several existing utility alignments, differing soil types from various excavation or trench backfills should be expected.

We anticipate that vertical or horizontal movement of the ground surface will occur behind and/or adjacent to the shoring system during excavation. The amount of movement depends heavily on the type of shoring system used, the contractor's

workmanship, and soil conditions. We recommend that structures/features in the vicinity of the planned shoring installation be reviewed with regard to foundation support and tolerance to settlement. To reduce the potential for distress to adjacent structures, we recommend that the retaining system be designed to limit the ground settlement behind the shoring system to ½-inch or less. Possible causes of movement that should be addressed include settlement during excavation for structure construction, construction vibrations, and removal of the support system. We recommend that shoring installation be evaluated carefully by the contractor prior to construction and that ground vibration and settlement monitoring be performed during construction.

There may be structures/features along the alignment that may be affected by the proposed construction. Based upon the proximity of structures/features to the alignment and the planned excavation, additional shoring methods may be needed to preserve these structures/features.

The contractor should retain a qualified and experienced engineer to design the shoring system. We recommend that the contractor take appropriate measures to protect workers. OSHA requirements pertaining to worker safety should be observed. Ninyo & Moore should evaluate the soil parameters used by the shoring designer for appropriateness.

9.1.3. Bottom Stability

Based on the proposed pipe invert depths, the excavations for the project are not anticipated to encounter groundwater (with the exception of possible surface run-off). However, due to the existing irrigation facilities within the project limits, soft or wet materials may be encountered at the base of excavations. In addition, if excavations are open during a heavy rain event, the trench bottom might become saturated and unstable. This scenario should be evaluated on a case-by-case basis.

9.1.4. Trench Widths

The minimum and maximum trench widths should be in accordance with MAG Section 601. The trench width should be taken as the clear distance between trench walls or the inside face-to-face distance between the ground support systems.

9.1.5. Pipe Bedding and Pipe-Zone Backfill

We recommend that the new underground pipelines be supported on 4 or more inches of graded granular bedding material such as sand and gravel meeting the requirements of MAG (pea gravel or crushed chips are not recommended). This bedding/pipe-zone backfill should extend 6 inches or more above the pipe crown. Care should be taken not to allow voids to form beneath the pipe (i.e., the pipe haunches should be continuously supported) to avoid damaging the pipelines. This may involve fill placement by hand or small compaction equipment. The bedding/pipe-zone should be placed in horizontal lifts no more than approximately 8 inches in loose thickness and compacted by appropriate mechanical methods to a relative compaction of 95 percent (as evaluated by ASTM D 698) and at a moisture content generally near the laboratory optimum. Further, bedding material and compaction requirements should be in accordance with the MAG Specifications. Water consolidation, jetting, or flooding should not be used for compaction purposes.

When backfilling, care should be taken to fill voids with compacted material so that excessive settlement of the backfill will not occur. Settlement can be mitigated by backfilling with granular material that is easy to compact or by using a Controlled Low Strength Material (CLSM), sometimes referred to as Controlled Density Fill. More detailed recommendations regarding the use of CLSM are provided in Section 9.1.7.

9.1.6. Trench Backfill

Trench backfill as discussed herein refers to the material placed above the bedding/pipe-zone backfill material. The Town of Gilbert calls for backfill and pavement surface replacement to be in accordance with Standard Detail 45, with a "T-top" construction.

Trench backfill material should be mechanically compacted to a relative compaction of 95 percent as evaluated by ASTM D 698 at a moisture content generally above the laboratory optimum moisture content. Lift thickness for backfill will be dependent upon the type of compaction equipment utilized, but should generally be placed in lifts not exceeding 8 inches in loose thickness. Special care should be exercised to avoid damaging the pipe or other structures during the compaction of the backfill.

Backfilling should generally be accomplished in a manner consistent with the standards provided by MAG. Many of the soils encountered during our exploration, as well as processed materials generated during construction, may be suitable for reuse as trench backfill provided they are free of organic material and debris. Clay lumps and rocks should not be larger than 4 inches in diameter. Some screening of larger particles may be needed. Imported backfill material, if utilized, should meet the criteria for imported fill as presented below.

9.1.7. Controlled Low Strength Material

If desired, CLSM may be used as pipe or trench bedding, pipe-zone, or backfill material. CLSM, also known as Controlled Density Fill or "Slurry Cement Backfill," should be considered as an alternative pipe embedment and trench backfill material. CLSM consists of a fluid, workable mixture of aggregate, Portland cement, and water. The use of CLSM has some advantages:

- A narrower trench can be used, thereby minimizing the quantity of soil to be excavated, and possibly reducing disturbance to the near-by traffic;
- The support given to the pipe is generally better, and higher values of modulus of soil reaction (E') can be used to design the pipe;
- Compaction requirements do not apply;
- There is less risk of damaging the pipe, since little compaction is needed to place CLSM;

- If native soils are used to formulate the CLSM, less imported material will be needed;
- CLSM can be batched to flow into irregularities in the trench bottom and walls; and
- The number of workers needed inside the trench excavation is reduced.

The CLSM design mix should be in accordance with MAG Specification Section 728 for a 1-sack mix. Additional mix design information can be provided upon request. If on-site materials are used for the aggregate mixture, test batches may be needed to observe conformity with strength requirements.

Buoyant or uplift forces on the piping should be considered if a CLSM is used and prudent construction techniques may need multiple pours to avoid inducing excessive uplift forces. The construction methods should not allow for the pipeline to displace laterally or vertically during placement of CLSM. Sufficient time should be provided to allow the CLSM to cure before placing additional lifts of CLSM.

9.1.8. Soil Parameters for Pipeline Design

Based on our field observations and our experience with similar materials, a unit weight of 125 pounds per cubic foot (pcf) can be estimated for engineered fill derived from on-site excavations. If import fill is used for trench backfill, a unit weight of 130 pcf may be used in design.

The modulus of soil reaction (E') is used to characterize the stiffness of the backfill placed on the sides of a buried pipe for the purpose of evaluating deflection caused by the weight of the backfill over the pipe. We understand that the depth of cover along the pipeline will be on the order of 10 feet or less. For granular backfill soils for the proposed pipeline, we recommend using an E′ value of 1,000 pounds per square inch (psi). As mentioned previously, CLSM may be used as pipe bedding and/or trench backfill. For CLSM backfill, we recommend that an E' value of 3,000 psi be used for design.

The coefficient of friction between the soil and the pipe depends upon the type of each material in the interaction. Assuming that a few different pipe materials will be considered, we suggest a coefficient of friction, μ, of 0.3 to 0.4 depending on the pipe's smoothness (these values do not have any factor of safety associated with them). The manufacturer of the pipe should be consulted for this parameter once the pipe material has been chosen.

9.1.9. Grading, Fill Placement, and Compaction

Vegetation and debris from the clearing operation and demolition debris should be removed from the site and disposed of at a legal dumpsite. Obstructions that extend below finish grade, if present, should be removed and the resulting holes filled with compacted soil.

The geotechnical consultant should carefully evaluate any areas of soft or wet soils prior to placement of grade-raise fill or other construction. Drying or overexcavation of some materials may be appropriate.

On-site soils and imported soils that are considered for re-use as engineered fill should not consist of potentially expansive material as evaluated by the ASTM D 4318 of having a Plasticity Index (PI) more than 20, and/or Expansion Index (EI) more than 50, as evaluated by ASTM D 4829. Our Atterberg limits tests on selected samples indicated that the plasticity indices ranged from 16 to 29. As such, it is our opinion that some of the on-site soils may not be suitable for re-use as engineered fill during construction. Additional evaluation should be conducted prior to and/or during construction by the Contractor to better delineate areas of unacceptable soils. As noted above, the on-site soils include medium to high plasticity clays, which are sensitive to moisture content fluctuations and may be difficult to compact at elevated moisture contents.

In addition to the above recommendations, suitable fill below new pavement should not have an R-value less than 10, or include organic material, construction debris, or other

non-soil fill materials. Rock particles and clay lumps should not be larger than 4 inches in dimension. Unsuitable fill material should be disposed of off-site or in non-structural areas.

Based on relative densities observed in our borings, for preparation of the subgrade to receive grade-raise fill or a new pavement section, we recommend that the existing subgrade materials be improved to a depth of 6 inches, or more. In addition, we recommend that flatwork be supported on 12 inches, or more, of moisture-conditioned and compacted engineered fill. This improvement may include scarification or overexcavation and replacement with moisture-conditioned and compacted engineered fill, as noted below. An earthwork (shrinkage) factor ranging from 10 to 20 percent for the on-site soils is estimated for this project.

Engineered fill material should be compacted by appropriate mechanical methods to 95 percent relative compaction as evaluated by ASTM D 698 at a moisture content generally near optimum. The improvement below these areas should extend laterally to a distance that is equivalent to the depth of improvement beyond the embankment fill or pavement footprint.

Following the improvement as described above, and prior to the placement of new fill, the resulting exposed surface should be proof-rolled and carefully evaluated by Ninyo & Moore. Based on this evaluation, additional remediation may be needed. This could include scarification of the exposed surface. This additional remediation, if needed, should be addressed by Ninyo & Moore during the earthwork operations.

9.1.10. Imported Fill Material

Imported fill, if utilized, should consist of granular material with a very low or low expansion potential. Import material in contact with ferrous materials should preferably have low corrosion potential (minimum resistivity more than 2,000 ohm-cm, chloride content less than 25 parts per million [ppm]). Import material in contact with concrete

should have a soluble sulfate content preferably less than 0.1 percent. Ninyo & Moore should evaluate such materials and details of their placement prior to importation.

9.2. Pavement

For areas of new pavement, we recommend that the existing pavement section be replaced with a new structural section. We have provided pavement section alternatives designed in accordance with the Town of Gilbert Standard Details and also in accordance with the procedures outlined in the American Association of State Highway and Transportation (AASHTO) Guide for Design of Pavement Structures (1993) in the paragraphs below. The recommended pavement thickness assumes that the pavement section is founded on improved soil as needed, as outlined above. For our analysis of the structural number value associated with the project, we estimated a structural coefficient of 0.42 for plant-mix AC pavements, and 0.12 for aggregate base material.

In addition, it is our understanding that some portions of the existing pavement may receive a surface rehabilitation. Recommendations for rehabilitation of the existing pavement in some locations are also provided below.

9.2.1. New Pavement Section per Town of Gilbert Standard Details

Based on a roadway classification of major arterial and the results of the laboratory testing, in accordance with Town of Gilbert Standard Details No. 21 and 33, a flexible pavement section of 5 inches of AC over 21 inches of AB is recommended. Based on conversations with the Town of Gilbert and Dibble Engineering, we understand that this pavement section will be used for Higley Road.

Table 2 – Recommended Asphalt Pavement Section – Town of Gilbert

Street	Layer	Thickness (inches)
Higley Road	Bituminous Surface Course (MAG 12.5 mm)*	1.5
	Bituminous Base Course (MAG 19 mm)*	3.5
	Aggregate Base Course (MAG Section 702)	21.0

Note:
* Asphalt-rubber asphalt concrete (ARAC) per MAG Section 325 can be utilized in place of hot-mix asphalt concrete if desired.

9.2.2. New Pavement Section per AASHTO

For design of pavement sections using the AASHTO design procedure, we utilized the following input parameters:

Table 3 – AASHTO Design Parameters

Classification	Major Arterial
Design Period	20 years
2014 Average Daily Traffic:	25,500 vehicles*
Growth Factor:	9.8%
Percent Heavy Trucks:	2%
Equivalent Single Axle Load (ESAL):	3,894,987
Reliability:	90 percent
Overall Deviation:	0.45
Resilient Modulus:	7,175 psi
Initial Serviceability	4.1
Terminal Serviceability:	2.6
Minimum Design Structural Number:	4.53

Note:
*From 2013 Traffic Counts provided on Town of Gilbert website.

Based on the results of our laboratory testing, we recommend that a design R-value of 10 be used for new pavement associated with this project. We recommend that soils placed within 3 feet of finished roadway subgrade, if any, demonstrate an R-value of 10 or more.

Based on the parameters noted above, we calculated that a pavement section comprised of 7 inches of AC over 15 inches of AB would meet the structural requirements. However, if the subgrade is mechanically stabilized with a layer of geogrid reinforcement beneath the AB layer, the pavement section can be reduced to 7 inches of AC over 6 inches of AB over a triaxial TX-7 geogrid conforming to MAG Section 306, or better. If other geogrid types are considered, calculations should be submitted and approved by the Town of Gilbert demonstrating that they meet the design ESALs and structural number noted above. Based on conversations with the Town of Gilbert and Dibble Engineering, we understand that a pavement section over a mechanically stabilized base, as summarized below, will be used for Warner Road due to the presence of relatively shallow existing utilities.

Table 4 – Recommended Asphalt Pavement Sections – AASHTO

Street	Layer	Thickness (inches)
Warner Road	Bituminous Surface Course (MAG 12.5 mm)*	1.5
	Bituminous Base Course (MAG 19 mm)*	5.5
	Aggregate Base Course (MAG Section 702)	6.0
	Geogrid Reinforcement (TX-7) (MAG Section 306)	-

Note:
* Asphalt-rubber asphalt concrete (ARAC) per MAG Section 325 can be utilized in place of hot-mix asphalt concrete if desired.

9.2.3. Existing Pavement Rehabilitation

We performed a limited pavement surface evaluation of the project site. Based on our field observations, low to high severity pavement distresses were noted on the various legs of the intersection. We understand that the north and east legs of the intersection, portions of the west and south legs, and the intersection itself, will be reconstructed with a new pavement section. In general, these areas exhibit varying degrees and types of distress and reconstruction is recommended. It is our opinion that the various distress features noted on the existing pavement in these areas may be the result of repeated traffic loadings, age of the pavement, and/or environmental factors. It is our opinion that the distresses noticed indicate both structural and functional failure of the pavement.

We also understand that rehabilitation (mill and overlay) is being considered for the east bound lanes of the west leg of Warner Road and the south bound lanes of the south leg of Higley Road, extending to Stottler Drive. Our observations, and recommendations, are noted below:

- Higley Road (south bound): The half-street improvements previously constructed begin roughly 100 feet south of the intersection and extend southward. The first 100 feet or so from the intersection should be reconstructed as part of the intersection reconstruction due to observed pavement distresses (moderate to high severity cracking). South of this area, scattered low severity longitudinal and transverse cracks were observed and are considered acceptable for a mill and overlay. We observed rutting near the transition of the older intersection pavement with the newer half-street improvements; however, this rutting will probably be mitigated with the mill and overlay.

- Warner Road (east bound): We observed rutting, moderate to high severity transverse cracking, and low to moderate severity longitudinal cracking in these lanes. In addition, low to moderate severity edge cracking, fatigue cracking, and rutting were observed in the right turn lane. This area is also considered acceptable for mill and overlay. However, if cracks wider than 1/2-inch are observed following the milling operation, crack seal treatments should be considered prior to overlay to delay reflection cracking.

We recommend that the existing pavement considered for rehabilitation within the project limits be milled to a depth of 2 inches and overlain with 2 inches of rubberized

AC or conventional hot-mix asphalt. Rubberized AC tends to be more flexible and can retard reflection cracking better than hot-mix asphalt. It also has a tendency to reduce traffic-related noise.

If cracks larger than 1/2-inch wide are observed at the surface of the AC after the milling operation is finished, we recommend that a paving fabric or geotextile be incorporated into the pavement section. The paving fabric or geotextile should generally be centered on the crack, and should extend 6 or more inches laterally beyond the crack. For this application, we recommend that a 1/2-inch layer of gap-graded AC be placed on the milled surface, and the paving fabric or geotextile be placed over this thin lift of AC. This thin lift of AC is recommended because the paving fabric or geotextile may have difficulty adhering to the milled surface due to the dust and surface roughness. After the pavement fabric or geotextile is applied, the remainder of the pavement overlay can be constructed.

For areas where high severity pavement distresses are apparent at the exposed roadway surface after the milling, we recommend that the existing AC be removed and replaced with new AC. After the cracked asphalt is removed, and prior to the placement of the new asphalt, the exposed subgrade and/or base should be evaluated for excessively loose or wet material. If encountered, the unacceptable material should either be removed and replaced or recompacted in place. Subgrade preparation guidelines as outlined above should be followed. The expected design life of this rehabilitation is estimated to be on the order of 5 to 10 years, provided that regular maintenance techniques are followed.

9.3. Corrosion

The corrosion potential of the on-site materials was analyzed to evaluate its potential effect on the concrete. Corrosion potential was evaluated using the results of laboratory testing of samples obtained during our subsurface evaluation that were considered representative of soils at the subject site.

Laboratory testing consisted of pH, minimum electrical resistivity, and chloride and soluble sulfate contents. The pH and minimum electrical resistivity tests were performed in general accordance with Arizona Test 236b, while sulfate and chloride tests were performed in accordance with Arizona Test 733 and 736, respectively. The results of the corrosivity tests are presented in Appendix B.

The soil pH values of the samples tested were 8.0 and 8.3, which are considered to be alkaline. The minimum electrical resistivity values measured in the laboratory were about 550 and 1,025 ohm-cm, which are considered to be corrosive to ferrous materials. The chloride contents of the samples tested were 93 and 235 ppm, which are also considered to be corrosive to ferrous materials. The soluble sulfate contents of the soil samples tested were 0.016 and 0.042 percent by weight, representing a negligible sulfate exposure for concrete.

The results of the laboratory testing indicate that the on-site materials are considered to be generally corrosive to ferrous materials. Therefore, special consideration may be given to the use of heavy-gauge, corrosion-protected, underground steel pipe or culverts. As an alternative, wrapped/plastic pipe or reinforced concrete pipe may be considered. A corrosion specialist should be consulted for further recommendations.

9.4. Concrete

Laboratory chemical tests performed on on-site soil samples indicated a sulfate content up to 0.042 percent by weight. Based on the following American Concrete Institute (ACI) table, the on-site soils are generally considered to have a negligible sulfate exposure to concrete.

Table 5 – ACI Requirements for Concrete Exposed to Sulfate-Containing Soil

Sulfate Exposure	Water-Soluble Sulfate (SO_4) in Soil, Percentage by Weight	Cement Type	Water-Cementitious Materials Ratio, by Weight, Normal-Weight Aggregate Concrete[1]	f'_c, Normal-Weight and Lightweight Aggregate Concrete, psi x 0.00689 for MPa
Negligible	0.00 - 0.10	--	--	--
Moderate[2]	0.10 - 0.20	II, IP(MS), IS (MS)	0.50 or less	4,000 or more
Severe	0.20 - 2.00	V	0.45 or less	4,500 or more
Very severe	Over 2.00	V plus pozzolan[3]	0.45 or less	4,500 or more

Notes:
[1] A lower water-cementitious materials ratio or higher strength may be call for low permeability or for protection against corrosion of embedded items or freezing and thawing (ACI Table 4.2.2).
[2] Seawater.
[3] Pozzolan that has been evaluated by test or service record to improve sulfate resistance when used in concrete containing Type V cement.

Notwithstanding, the sulfate test results and due to the limited number of chemical tests performed, as well as our experience with similar soil conditions and local practice, we recommend the use of "Type II" cement for construction of concrete structures at this site.

The concrete should have a water-cementitious materials ratio of no more than 0.50 by weight for normal weight aggregate concrete. The structural engineer should ultimately select the concrete design strength based on the project specific loading conditions. However, higher strength concrete may be selected for increased durability, resistance to slab curling and shrinkage cracking.

9.5. Site Drainage

Surface drainage should be provided to divert water away from the paved surfaces and structures. Surface water should not be permitted to pond on or adjacent to pavement areas. To deter accumulation of water below the new pavement sections, the subgrade soils below

the new pavement sections should be sloped away from the center toward the edges of the roadway.

9.6. Pre-Construction Conference

We recommend that a pre-construction conference be held. Representatives of the owner, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the project plans and schedule. Our office should be notified if the project description included herein is incorrect, or if the project characteristics are significantly changed.

10. LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant

perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

11. REFERENCES

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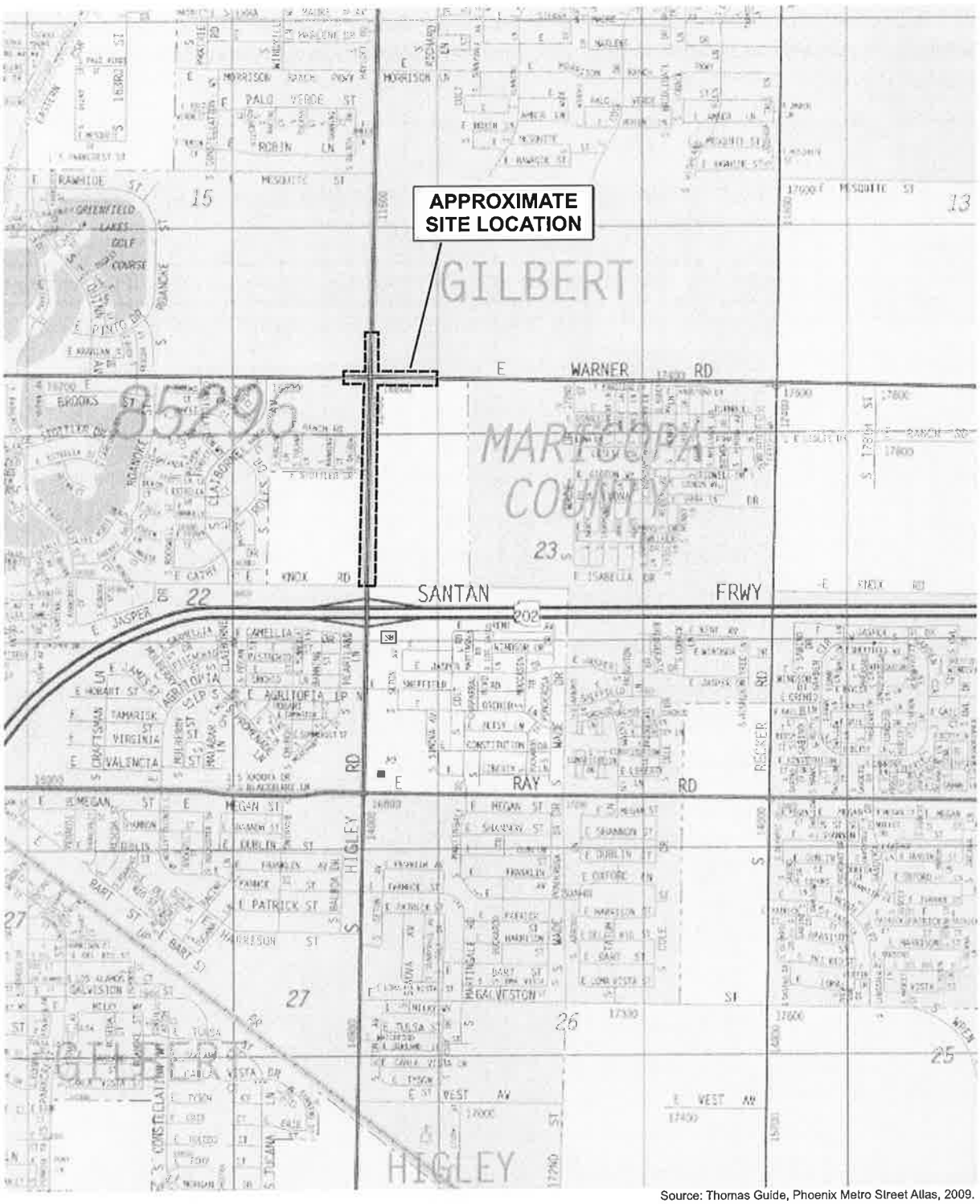
AERIAL PHOTOGRAPHS

Source	Date
Flood Control District of Maricopa County	1937, 1949, 1979, 1993, 1996, 1998, 2000-2009



Source: Thomas Guide, Phoenix Metro Street Atlas, 2009.

0 1900

Approximate Scale:
1 inch = 1900 feet

Note: Dimensions, directions, and locations are approximate.

Ninyo & Moore		SITE LOCATION	FIGURE 1
PROJECT NO: 603900001	DATE: 12/13	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	

file no: 3900vmap1213

0 320

Approximate Scale:
1 Inch = 320 feet

Ninyo & Moore		BORING LOCATIONS	FIGURE 2
PROJECT NO: 603900001	DATE: 12/13	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	

file no. 360000001213

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following methods.

Bulk Samples

Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler

Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples

Relatively undisturbed soil samples were obtained in the field using the following methods.

The Modified Split-Barrel Drive Sampler

The sampler, with an external diameter of 3.0 inches, was lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a 140-pound hammer in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

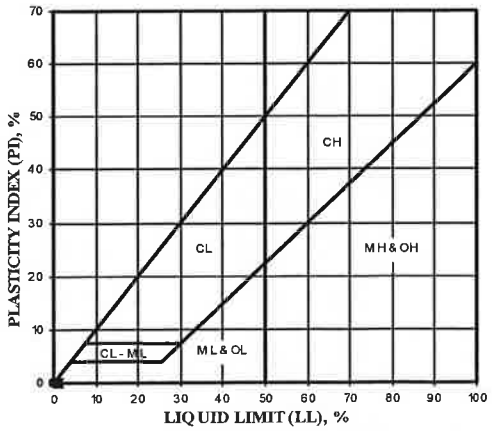
U.S.C.S. METHOD OF SOIL CLASSIFICATION

MAJOR DIVISIONS		SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (More than 1/2 of soil > No. 200 Sieve Size)	GRAVELS (More than 1/2 of coarse fraction > No. 4 sieve size	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction < No. 4 sieve size	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (More than 1/2 of soil < No. 200 sieve size)	SILTS & CLAYS Liquid Limit <50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit >50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	306 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
Coarse	3" to 3/4"	76.2 to 19.1
Fine	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.075
Coarse	No. 4 to No. 10	4.76 to 2.00
Medium	No. 10 to No. 40	2.00 to 0.420
Fine	No. 40 to No. 200	0.420 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

PLASTICITY CHART



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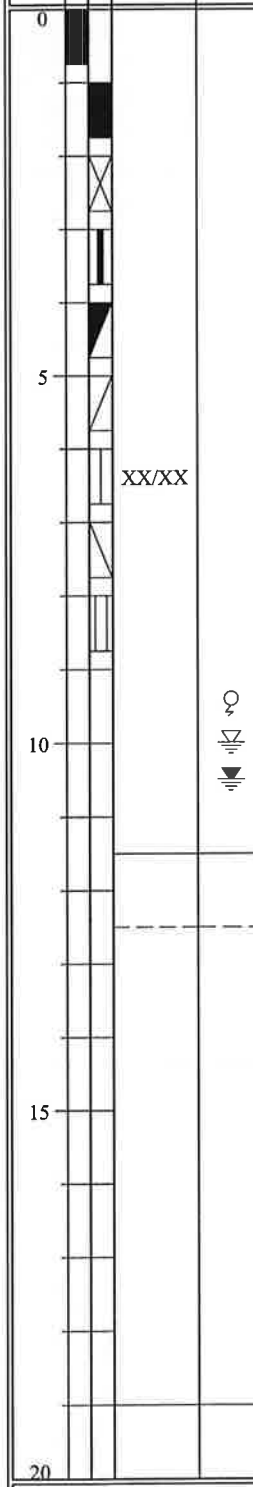
U.S.C.S. METHOD OF SOIL CLASSIFICATION

Updated Nov. 2011

BORING LOG EXPLANATION SHEET



Bulk sample.

Modified split-barrel drive sampler.

No recovery with modified split-barrel drive sampler.

Sample retained by others.

Standard Penetration Test (SPT).

No recovery with a SPT.

Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.

No recovery with Shelby tube sampler.

Continuous Push Sample.

Seepage.

Groundwater encountered during drilling.

Groundwater measured after drilling.

SM

MAJOR MATERIAL TYPE (SOIL):
Solid line denotes unit change.

CL

Dashed line denotes material change.

Attitudes: Strike/Dip
b: Bedding
c: Contact
j: Joint
f: Fracture
F: Fault
cs: Clay Seam
s: Shear
bss: Basal Slide Surface
sf: Shear Fracture
sz: Shear Zone
sbs: Shear Bedding Surface

The total depth line is a solid line that is drawn at the bottom of the boring.

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BORING LOG

Explanation of Boring Log Symbols

PROJECT NO.	DATE	FIGURE

Updated Nov. 2011

DATE DRILLED 8/27/13 BORING NO. B-1

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-55, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0		13				CL	FILL: Brown, damp, very stiff, sandy lean CLAY; few gravel.
		28				CL	ALLUVIUM: Brown, damp, hard, sandy lean CLAY; few gravel; scattered caliche nodules.
5							Total Depth = 5 feet. Groundwater not encountered during drilling. Backfilled on 8/27/13 shortly after completion of drilling. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

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BORING LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-1

DATE DRILLED 8/15/13 BORING NO. B-2

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING Diedrich D-50, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						CL	FILL: Brown, moist, stiff to very stiff, lean CLAY with sand.
		10					
		20	20.6	93.1			Very stiff to hard.
5						CL	ALLUVIUM: Brown, damp, very stiff, sandy lean CLAY.
		19					
		40	16.8	107.6			Hard.
10							Total Depth = 10 feet. Groundwater not encountered during drilling. Backfilled on 8/15/13 shortly after completion of drilling. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
15							
20							

Ninyo & Moore

BORING LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-2

DATE DRILLED 8/27/13 BORING NO. B-3

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-55, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 4 inches thick.
							AGGREGATE BASE: Approximately 8 inches thick.
							Brown, damp, medium dense, poorly graded GRAVEL with silt and sand.
		14				CL	FILL: Brown, damp, very stiff, sandy lean CLAY; few gravel.
		23	16.8	101.5			
5							
		28				CL	ALLUVIUM: Brown, damp, hard, sandy lean CLAY; few gravel; scattered caliche nodules.
		86					Increase in gravel content.
10							Total Depth = 10 feet. Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 8/27/13 shortly after completion of drilling.
							Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
15							
20							

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BORING LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-3

DATE DRILLED 8/27/13 BORING NO. B-4

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-75, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 4 inches thick.
							AGGREGATE BASE: Approximately 7 inches thick.
						CL	Brown, damp, medium dense, poorly graded GRAVEL with silt and sand.
		10					FILL: Brown, damp, stiff to very stiff, sandy lean CLAY.
		18	20.5	98.3			Very stiff.
5							Total Depth = 5 feet. Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 8/27/13 shortly after completion of drilling.
							Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

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BORING LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-4

DATE DRILLED 8/15/13 BORING NO. B-5

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING Diedrich D-50, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0		17				SC	FILL: Brown, damp, medium dense, clayey SAND; few gravel.
5		44	18.3	107.5		CH	ALLUVIUM: Brown, damp, hard, fat CLAY with sand; numerous caliche nodules.
		23					
10		64					Light brown. Total Depth = 10 feet. Groundwater not encountered during drilling. Backfilled on 8/15/13 shortly after completion of drilling. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
15							
20							

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BORING LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-5

DATE DRILLED 8/27/13 BORING NO. B-6

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-55, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						CL	ALLUVIUM: Brown, damp, very stiff, sandy lean CLAY; few gravel; scattered caliche nodules.
		16					
		58					Hard.
5							Total Depth = 5 feet. Groundwater not encountered during drilling. Backfilled on 8/27/13 shortly after completion of drilling. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
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BORING LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-6

DATE DRILLED 8/27/13 CORE NO. C-1

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-55, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 5 inches thick.
		7				SC	FILL: Brown, damp, loose to medium dense, clayey SAND with gravel.
		39				SC	ALLUVIUM: Brown, damp, medium dense, clayey SAND with gravel.
5							Total Depth = 5 feet. Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 8/27/13 shortly after completion of drilling. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

Ninyo & Moore

CORE LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-7

DATE DRILLED 8/27/13 CORE NO. C-2

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-55, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 4.5 inches thick.
							AGGREGATE BASE: Approximately 4.5 inches thick.
						CL	Brown, damp, medium dense, poorly graded GRAVEL with silt and sand.
		9					FILL: Reddish brown, damp, stiff, sandy lean CLAY.
		23	17.6	103.9		CL	ALLUVIUM: Reddish brown, damp, very stiff, sandy lean CLAY; trace gravel.
5							Total Depth = 5 feet. Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 8/27/13 shortly after completion of drilling. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

Ninyo & Moore

CORE LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-8

DATE DRILLED 8/15/13 CORE NO. C-3

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING Diedrich D-50, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 5 inches thick.
							AGGREGATE BASE: Approximately 5 inches thick.
						SC	Brown, damp, medium dense, poorly graded GRAVEL with silt and sand.
		6					FILL: Brown, damp, loose, clayey SAND; few gravel.
						SC	ALLUVIUM: Brown, damp, medium dense, clayey SAND; few gravel.
		29					
5							Total Depth = 5 feet. Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 8/15/13 shortly after completion of drilling.
							Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

Ninyo & Moore

CORE LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-9

DATE DRILLED 8/27/13 CORE NO. C-4

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING CME-55, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 4 inches thick.
							AGGREGATE BASE: Approximately 13.5 inches thick. Brown, damp, medium dense, poorly graded GRAVEL with silt and sand.
	Driven	12				CL	FILL: Brown, damp, very stiff, sandy lean CLAY.
	Driven	37				CL	ALLUVIUM: Brown, dry, hard, sandy lean CLAY.
5							Total Depth = 5 feet. Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 8/27/13 shortly after completion of drilling.
							Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

Ninyo & Moore

CORE LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-10

DATE DRILLED 8/15/13 CORE NO. C-5

GROUND ELEVATION 1,290' ± (MSL) SHEET 1 OF 1

METHOD OF DRILLING Diedrich D-50, 8" Diameter Hollow-Stem Auger (D&S Drilling)

DRIVE WEIGHT 140 lbs. (Automatic) DROP 30"

SAMPLED BY GDS LOGGED BY GDS REVIEWED BY JSR

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							ASPHALT CONCRETE: Approximately 5 inches thick.
							AGGREGATE BASE: Approximately 3 inches thick.
						SC	Brown, damp, medium dense, poorly graded GRAVEL with silt and sand.
		2					FILL: Brown, damp, very loose, clayey SAND; few gravel. Refusal on gravel, cobbles, and possible boulders.
							Total Depth = 3.5 feet. (Refusal) Groundwater not encountered during drilling. Backfilled and asphalt concrete patched on 8/15/13 shortly after completion of drilling.
5							Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
10							
15							
20							

Ninyo & Moore

CORE LOG

HIGLEY AND WARNER INTERSECTION IMPROVEMENTS
GILBERT, ARIZONA

PROJECT NO.	DATE	FIGURE
603900001	12/13	A-11

APPENDIX B

LABORATORY TESTING

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-situ Moisture and Density Tests

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

Gradation Analysis

Gradation analysis tests were performed on selected representative soil samples in general accordance with ASTM D 422. The grain-size distribution curves are shown on Figures B-1 through B-11. These test results were utilized in evaluating the soil classifications in accordance with the USCS.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the USCS. The test results and classifications are shown on Figures B-12 and B-13.

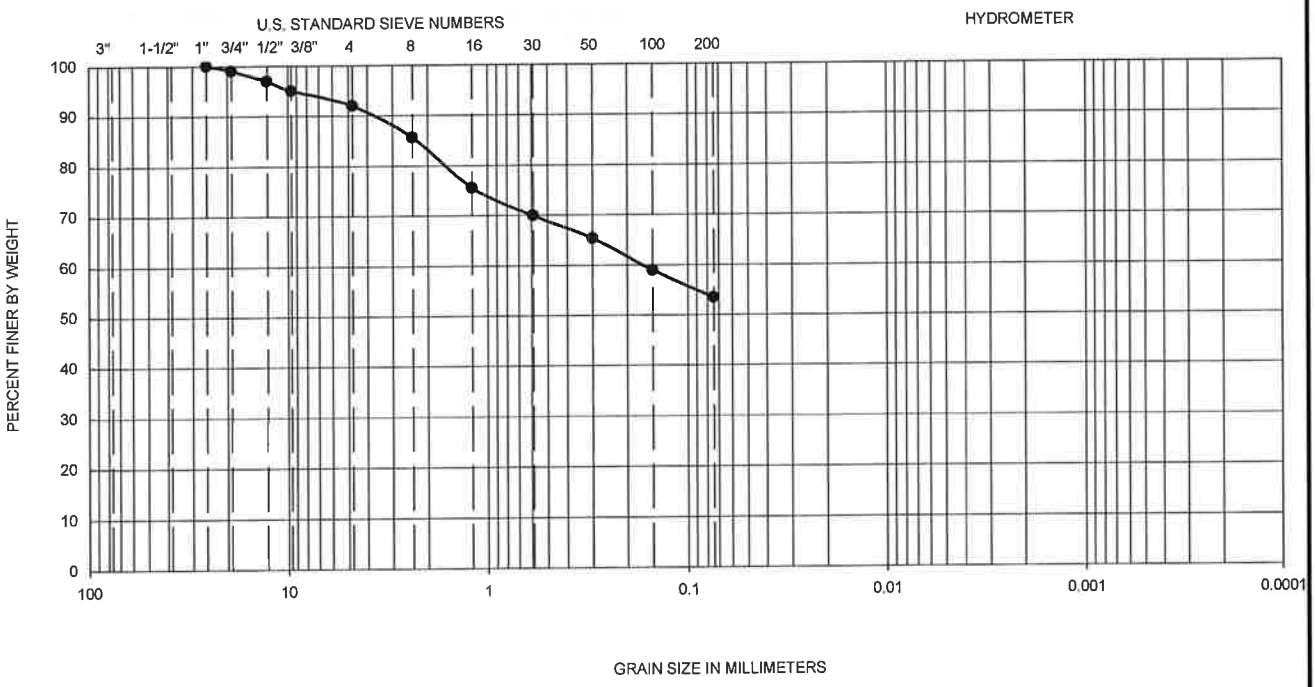
Consolidation Tests

Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 2435. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are summarized on Figure B-14 and B-15.

Soil Corrosivity Tests

Soil pH and resistivity tests were performed on representative samples in general accordance with Arizona Test ARIZ 236b. The chloride content of these selected samples was evaluated in general accordance with ARIZ 736. The sulfate content of these selected samples was evaluated in general accordance with ARIZ 733. The test results are presented on Figure B-16.

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

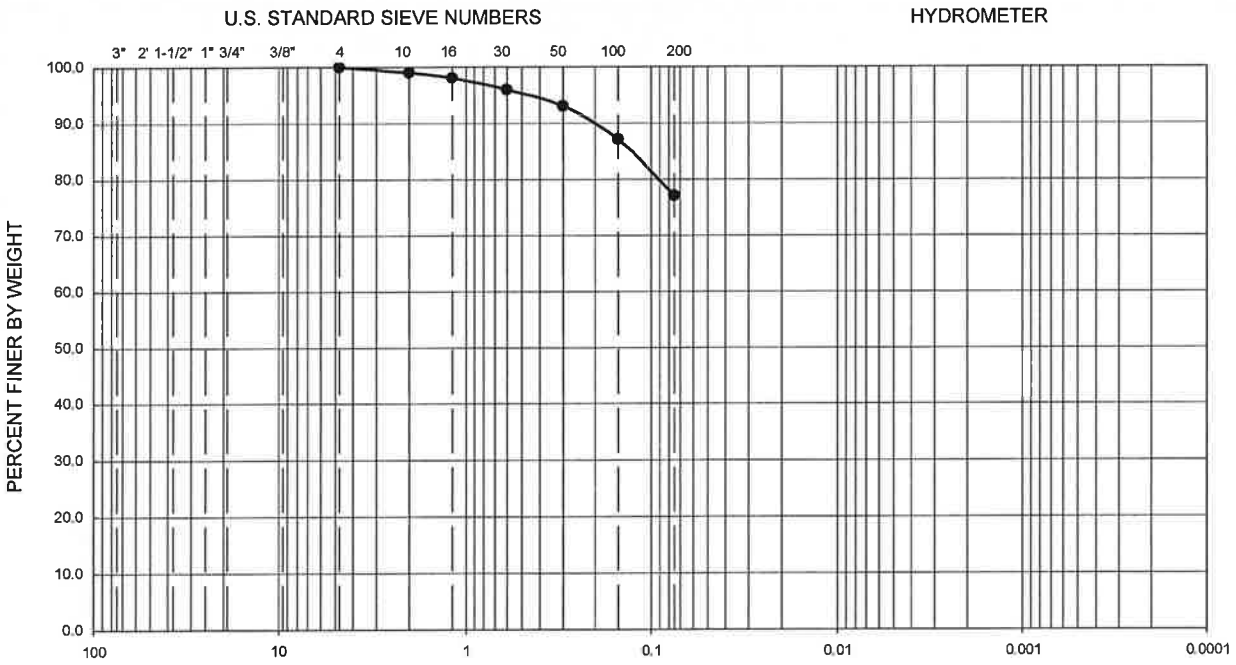


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	U.S.C.S
●	B-1	0.0-5.0	40	15	25	--	--	--	--	--	53	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-1
603900001 / 12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

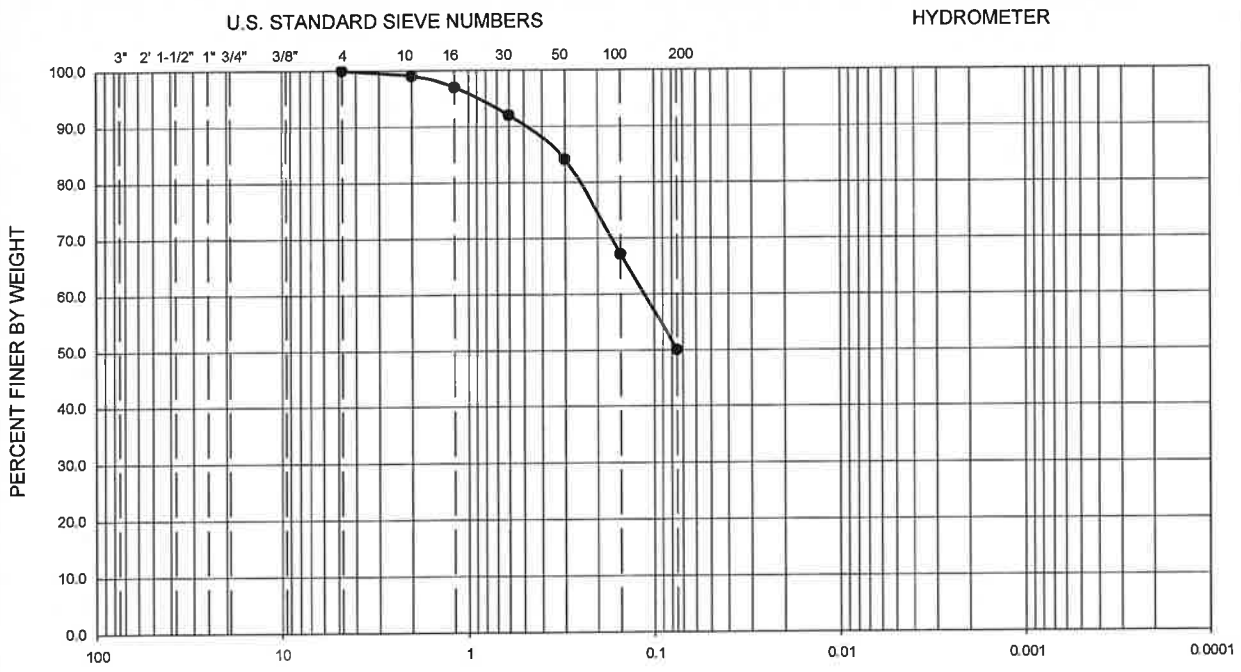


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-2	3.5-5.0	35	17	18	--	--	--	--	--	77	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-2
603900001 / 12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

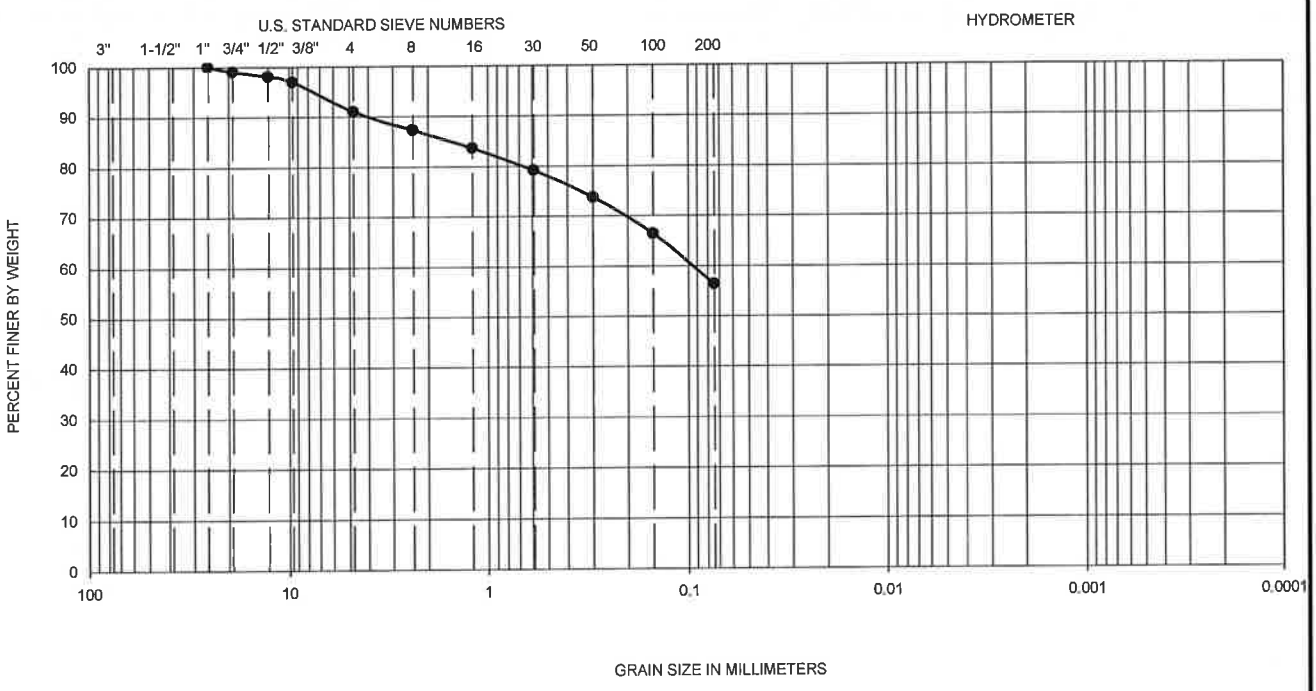


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-2	8.5-10.0	45	22	23	--	--	--	--	--	50	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-3
603900001	12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

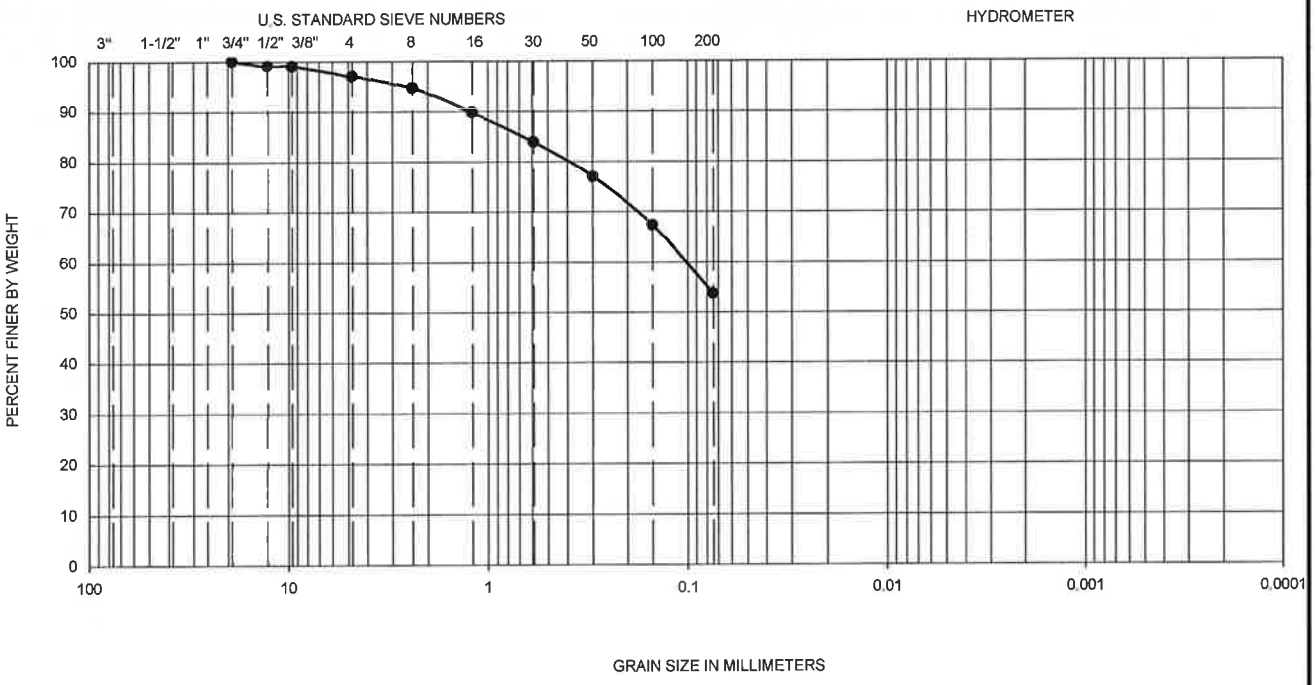


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	U.S.C.S
●	B-3	1.0-5.0	44	16	28	--	--	--	--	--	56	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-4
603900001 / 12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

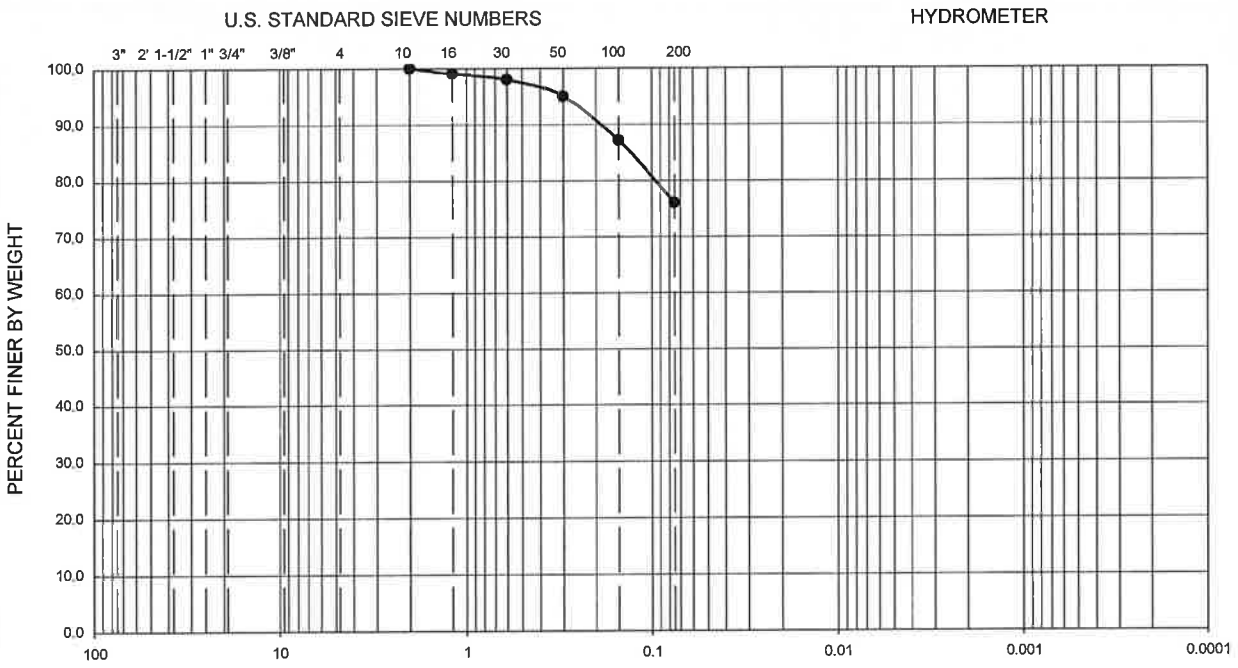


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	U.S.C.S
●	B-4	0.95-5.0	36	15	21	--	--	--	--	--	54	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-5
603900001 / 12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

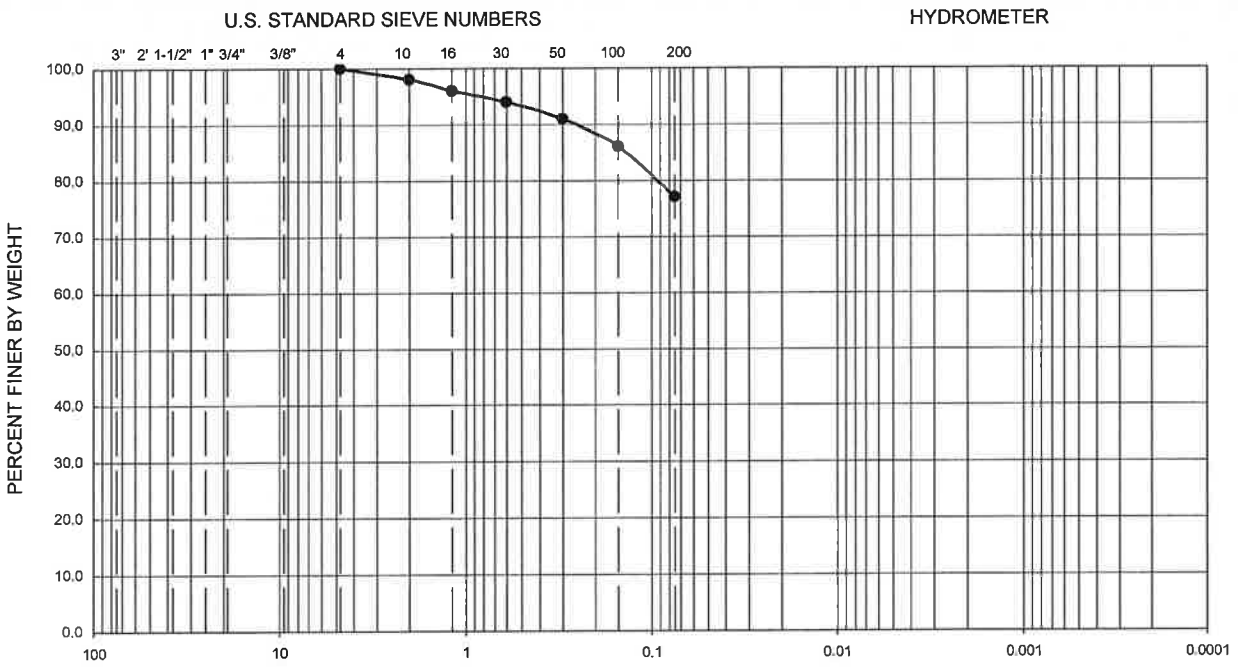


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-4	3.5-5.0	45	17	28	--	--	--	--	--	76	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-6
603900001	12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

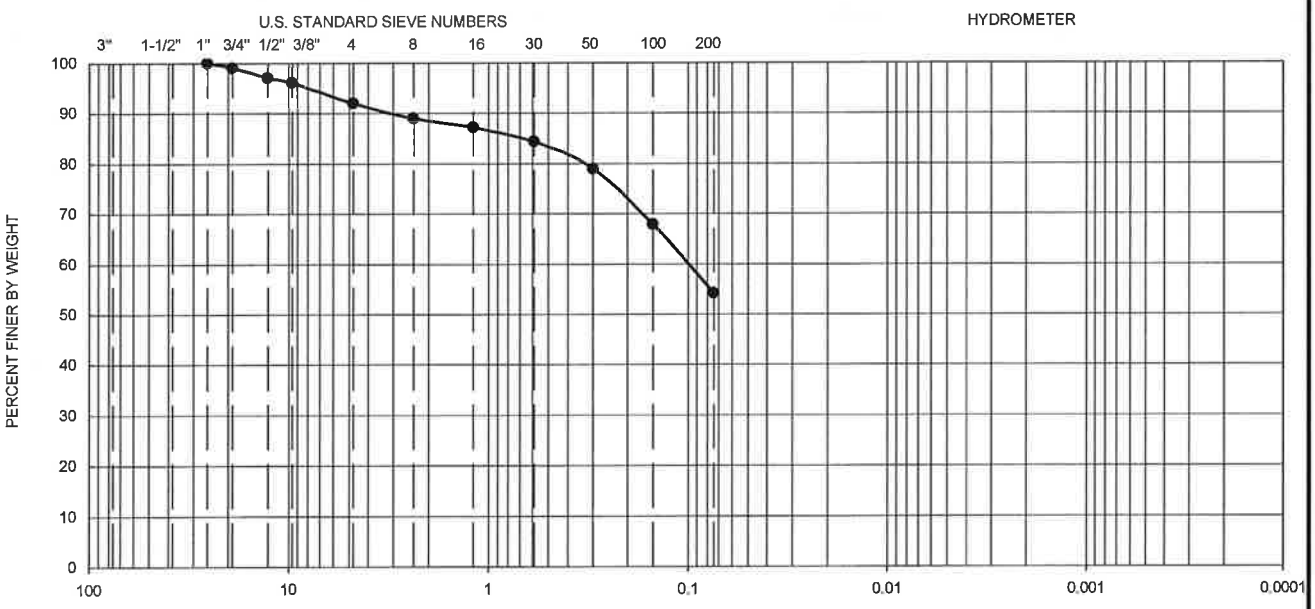


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-5	3.5-5.0	51	22	29	--	--	--	--	--	77	CH

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-7
603900001	12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

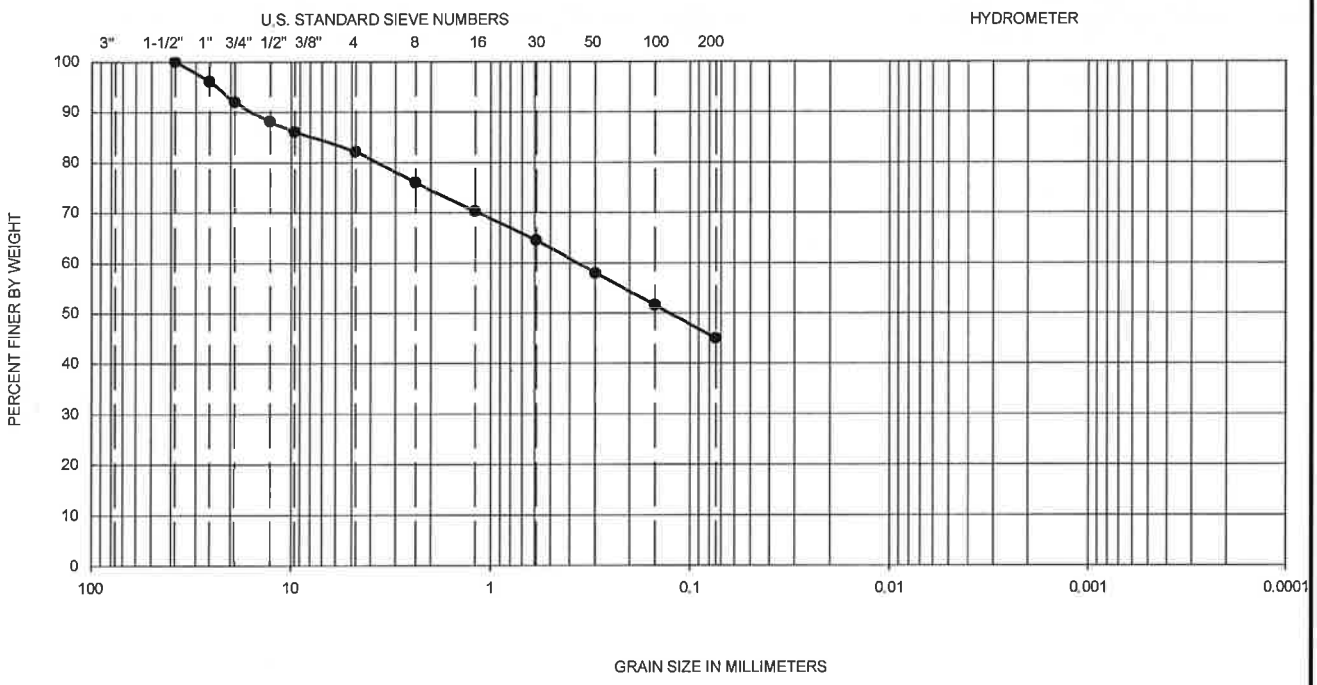


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	U.S.C.S
●	B-6	0.0-5.0	37	15	22	--	--	--	--	--	54	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-8
603900001 / 12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

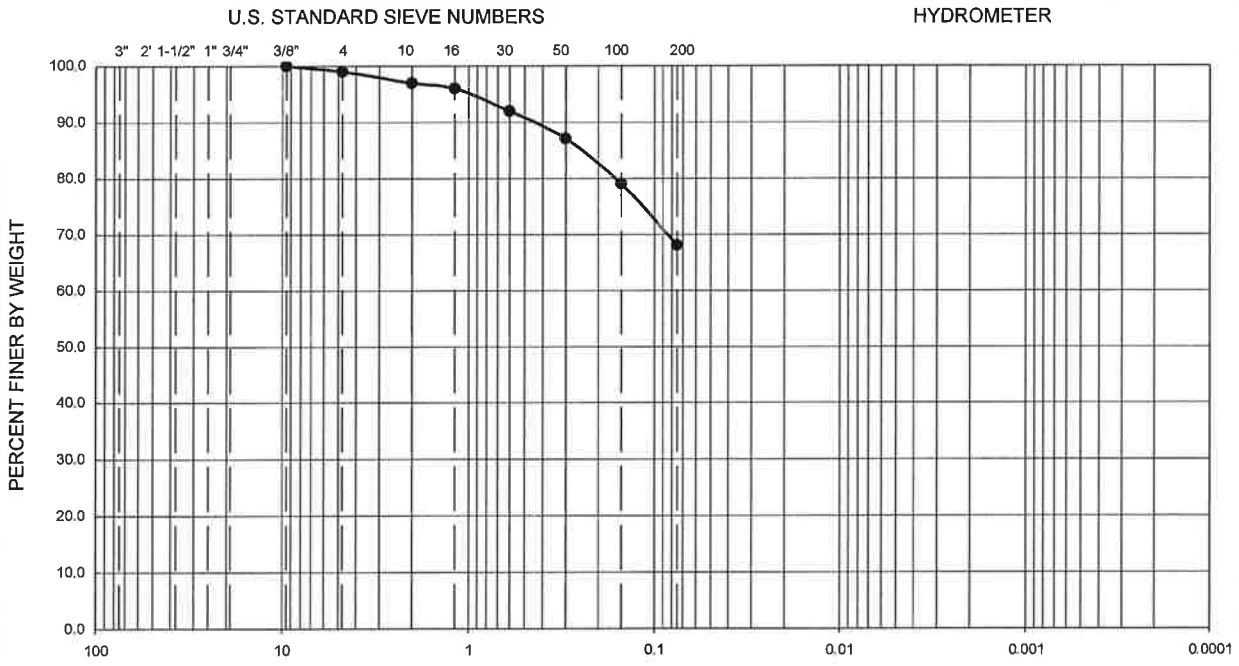


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	U.S.C.S
●	C-1	0.4-5.0	34	15	19	--	--	--	--	--	45	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-9
603900001 / 12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

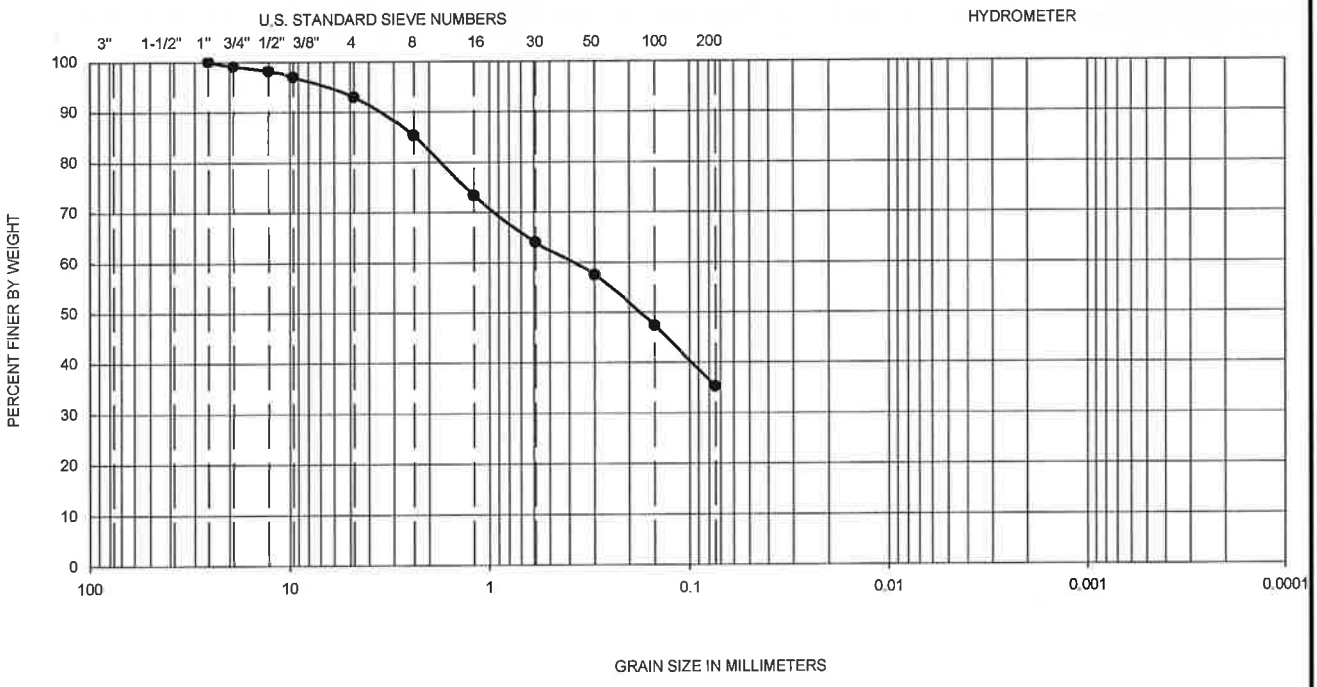


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	C-2	3.5-5.0	46	17	29	--	--	--	--	--	68	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-10
603900001	12/13		

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

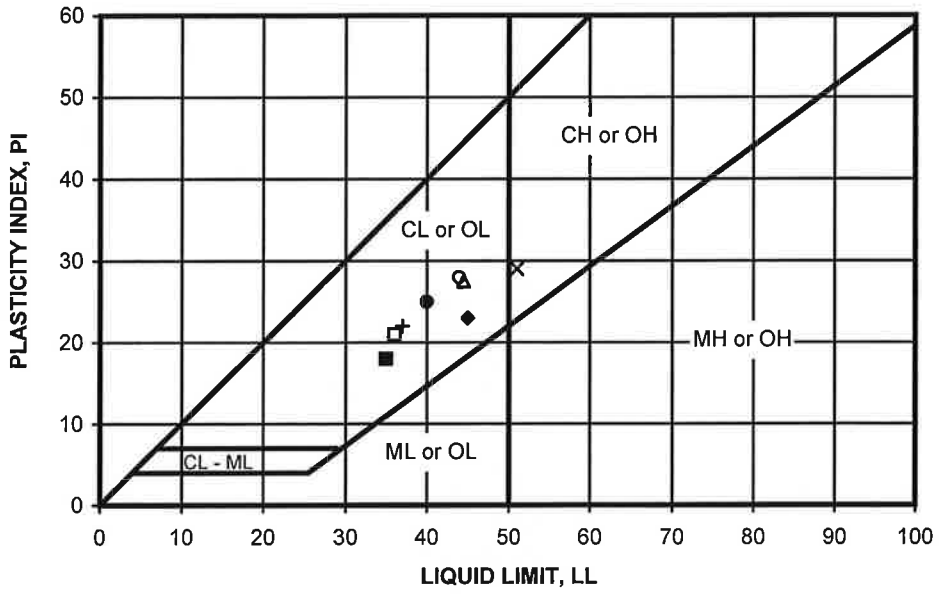


Symbol	Hole No.	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	U.S.C.S
●	C-3	0.4-5.0	35	19	16	--	--	--	--	--	35	SC

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. / DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-11
603900001 / 12/13		

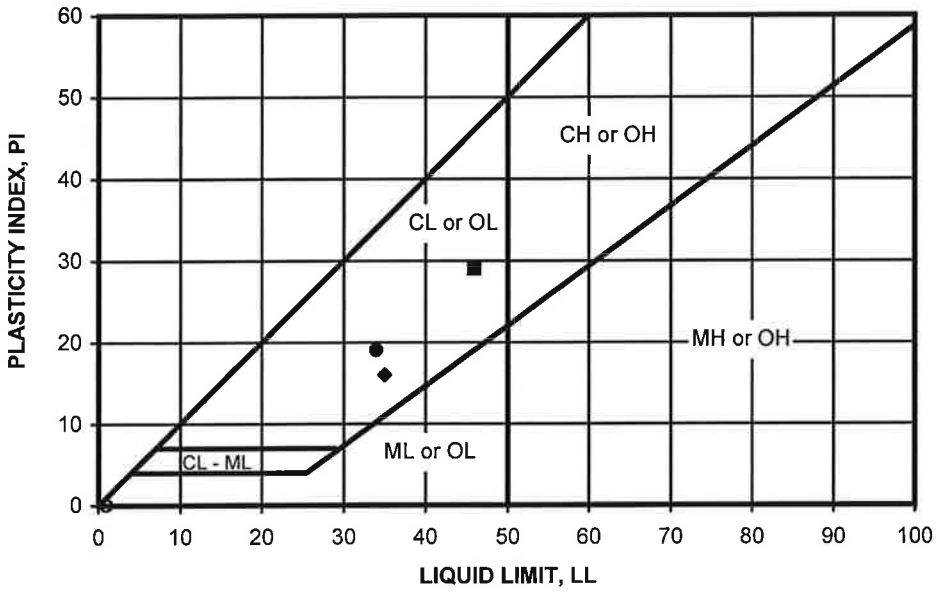
SYMBOL	LOCATION	DEPTH (FT)	LIQUID LIMIT, LL	PLASTIC LIMIT, PL	PLASTICITY INDEX, PI	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS (Entire Sample)
●	B-1	0.0-5.0	40	15	25	CL	CL
■	B-2	3.5-5.0	35	17	18	CL	CL
◆	B-2	8.5-10.0	45	22	23	CL	CL
o	B-3	1.0-5.0	44	16	28	CL	CL
□	B-4	0.95-5.0	36	15	21	CL	CL
Δ	B-4	3.5-5.0	45	17	28	CL	CL
X	B-5	3.5-5.0	51	22	29	CH	CH
+	B-6	0.0-5.0	37	15	22	CL	CL



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

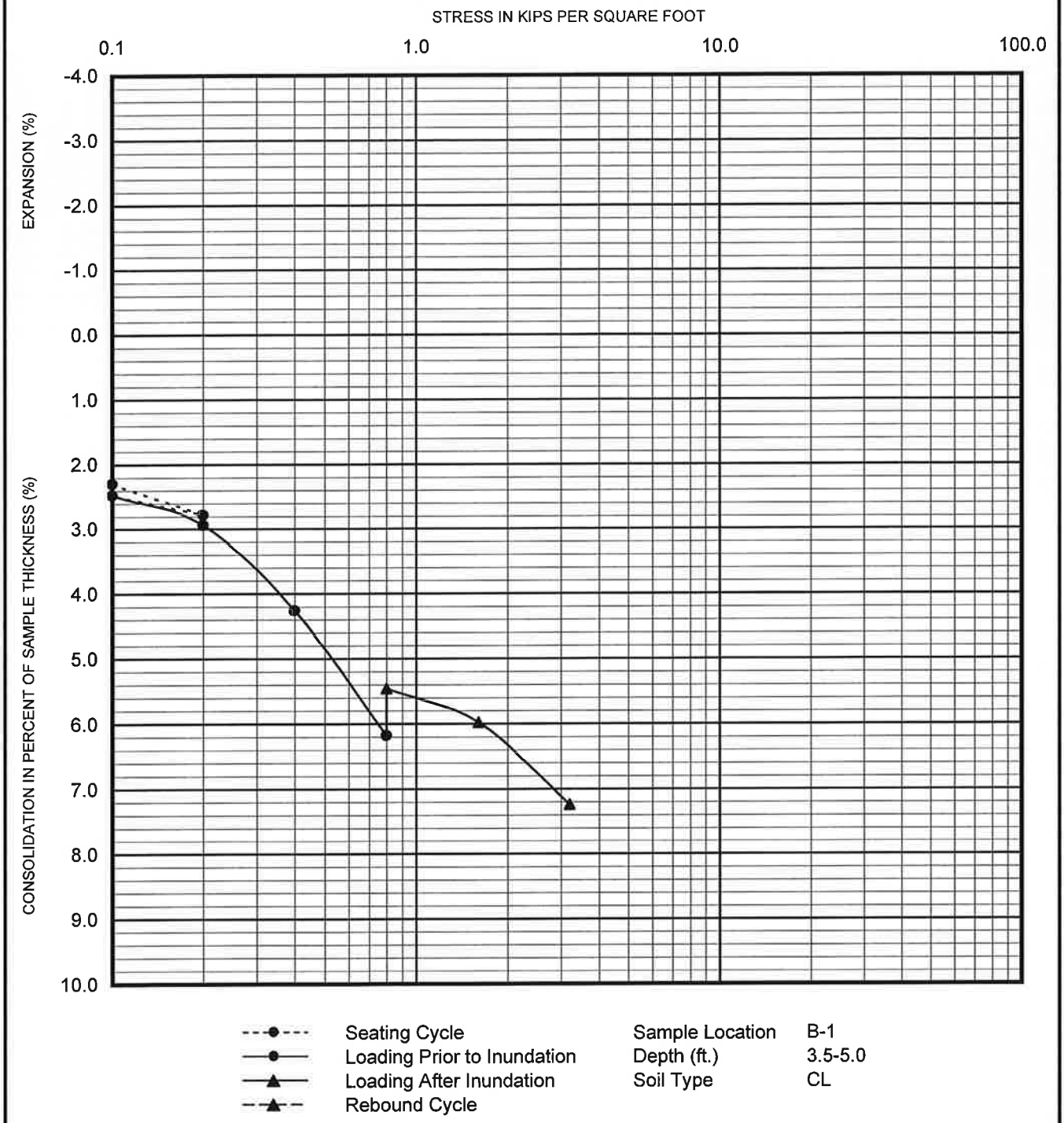
Ninyo & Moore	ATTERBERG LIMITS TEST RESULTS	FIGURE
PROJECT NO. 603900001 / DATE 12/13	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-12

SYMBOL	LOCATION	DEPTH (FT)	LIQUID LIMIT, LL	PLASTIC LIMIT, PL	PLASTICITY INDEX, PI	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS (Entire Sample)
●	C-1	0.4-5.0	34	15	19	CL	SC
■	C-2	3.5-5.0	46	17	29	CL	CL
◆	C-3	0.4-5.0	35	19	16	CL	SC



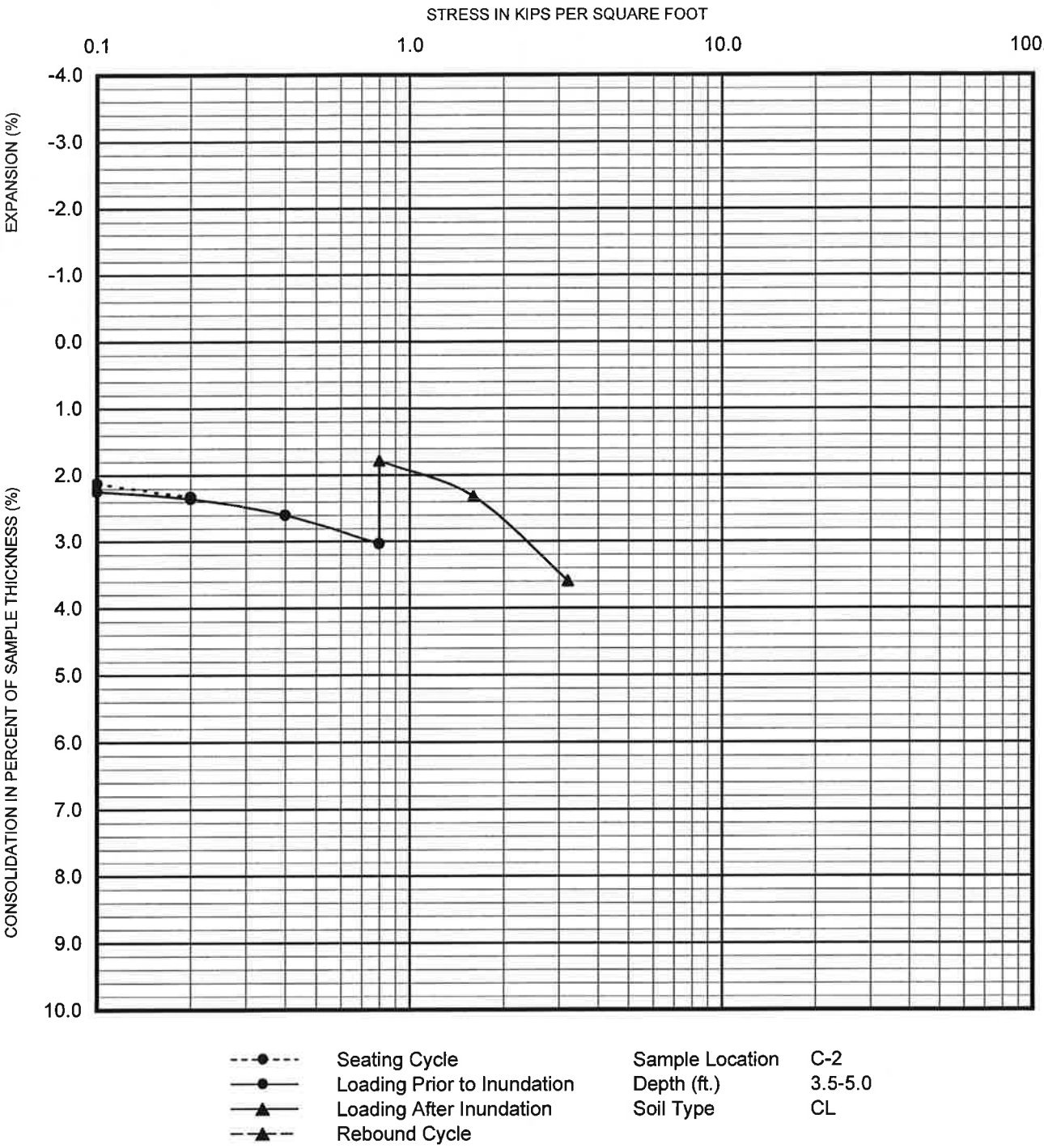
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

Ninyo & Moore	ATTERBERG LIMITS TEST RESULTS	FIGURE
PROJECT NO. 603900001 / DATE 12/13	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-13



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

Ninyo & Moore	CONSOLIDATION TEST RESULTS	FIGURE
PROJECT NO. 603900001 / DATE 12/13	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-14



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

Ninyo & Moore	CONSOLIDATION TEST RESULTS	FIGURE
PROJECT NO. 603900001 / DATE 12/13	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-15

SAMPLE LOCATION	SAMPLE DEPTH (FT)	pH [1]	RESISTIVITY [1] (Ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-2	0.0-5.0	8.0	550	424	0.042	235
B-4	0.95-5.0	8.3	1,025	158	0.016	93

[1] PERFORMED IN GENERAL ACCORDANCE WITH ARIZONA TEST METHOD 236b
[2] PERFORMED IN GENERAL ACCORDANCE WITH ARIZONA TEST METHOD 733
[3] PERFORMED IN GENERAL ACCORDANCE WITH ARIZONA TEST METHOD 736

Ninyo & Moore		CORROSIVITY TEST RESULTS	FIGURE
PROJECT NO.	DATE	HIGLEY AND WARNER INTERSECTION IMPROVEMENTS GILBERT, ARIZONA	B-16
603900001	12/13		

APPENDIX C

MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT CERTIFICATE OF APPROVAL TO CONSTRUCT

The MCESD ATC will be issued to the Town of Gilbert during the bidding process. The ATC will be provided to the bidders as an addendum to the bid documents.